This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

THE

VETERINARY RECORD,

AND

TRANSACTIONS

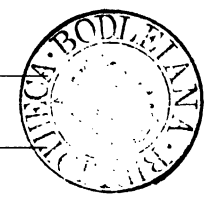
OF THE

VETERINARY MEDICAL ASSOCIATION.

EDITED BY

PROFESSORS SPOONER, SIMONDS, AND MORTON,

ROYAL VETERINARY COLLEGE.



VOLUME I.

ILLUSTRATED BY ENGRAVINGS AND WOODCUTS.

"PRÆSTAT IN OMNIBUS EXPERIENTIAM STRICTE PREMERE; UT ET, NATURÆ ORDINEM SEQUI."

LONDON:

PUBLISHED BY LONGMAN, BROWN, GREEN, & LONGMANS,
PATERNOSTER ROW.

1845.

Soc. 1631. e. 11
1.

PRINTED BY COMPTON AND RITCHIE, MIDDLE STREET, CLOTH FAIR.

THE

VETERINARY RECORD, &c.

VOL. I.] JANUARY 1845. [No. 1.

ROYAL VETERINARY COLLEGE.

THE Medical Session commenced at this Institution on Monday, November 11th, 1844. The Introductory Address was delivered by Mr. Morton. The theatre was unusually full, and many practitioners of veterinary medicine were present.

The lecturer, after offering some admonitory advice to the student, and placing before him the course of study to be adopted, proceeded cursorily to review the so-called elements of the ancients,—fire, air, earth, and water. After describing the constituents of the three last named, and exhibiting their characteristic properties, he shewed how they exist in organic substances, making up the varied principles found both in vegetables and animals, the atmosphere being the mysterious bond that connects the two kingdoms of nature, the organic and inorganic; one of the links of the chain that binds Prometheus to the rock. From the air plants derive their sustenance and support; on these the herbivora feed, which become food for the carnivora, and thus the animal organism generates not a single principle. The elementary substances are first absorbed and assimilated by vegetables, whence result certain compound bodies designated proximate principles; and among these *proteine* and its compounds occupy a prominent place.

According to Professor Mulder, its discoverer, proteine is found in various parts of plants—in the roots, stems, leaves, and fruit, and also the sap; and in three different conditions, one soluble in water, the other insoluble in this menstruum, and the third soluble in alcohol. Its empirical formula is

$$C_{40},\ H_{62},\ N_{10},\ O_{12}.$$

Thus shewing what a large number of atoms are congregated to-

gether to form a single proximate principle, and how disposed the same is to undergo chemical change when certain conditional circumstances are removed; whence result new compounds, most of them being binary in their nature.

Rarely is it the case that proteine exists pure in vegetables: it is united with phosphorus and sulphur, but the manner of combination is ill understood. The compounds there formed are, vegetable albumen, vegetable fibrine, and vegetable caseine, with gluten. The analogies of these in the animal are, animal fibrine, albumen, and caseine; and the difference between the principles are very minute proportions of sulphur and phosphorus.

These principles or compounds of proteine being found in the blood, it might be anticipated that other parts of the frame would be constituted of them, and it has been ascertained that animal fibre is a proteine compound: in the brain, liver, kidneys, and many other organs, the same compound is also met with under the form of albumen; and we find a similar one to exist in horns, nails, hairs, and cuticle. These principles are, in fact, the bases of the nitrogenized constituents of the animal frame; the *neutral quaternary organic principles* of Dumas and Boussingault.

In contradistinction to these, in the vegetable are met with what are designated *ternary compounds;* and under this head are placed woody fibre, starch, or dextrine, and the varieties of sugar, with certain bodies obtained from these; all of which are made up of carbon, hydrogen, and oxygen, varying not very considerably in the quantities of each, yet, their molecules being differently arranged, dissimilar compounds are formed; still they are easily convertible the one into the other.

These are partaken of by animals, and either undergo combustion within the living organism, to keep up the heat of the body, which is essential to life; or their elements are deposited in the form of fat, the supply of oxygen not being sufficient for the first named purpose, or nature not requiring it.

"The stall fed animal," says Liebig, "eats, and reposes merely for digestion. It devours, in the shape of nitrogenized compounds, far more food than is required for reproduction or the supply of waste alone; and, at the same time, it eats far more of substances devoid of nitrogen than is necessary merely to support respiration, and to keep up animal heat. Want of exercise and

diminished cooling are equivalent to a deficient supply of oxygen; for when these circumstances occur, the animal absorbs much less oxygen than is required to convert into carbonic acid the carbon of the substances destined for respiration. Only a small part of the excess of carbon thus occasioned is expelled from the body of the horse and ox in the form of hippuric acid; and all the remainder is employed in the production of a substance which, in a normal state, only occurs in small quantity, as a constituent of the nerves and brain: this substance is *fat*."

Again, he says, "It is evident that the formation of fat in the animal body is the result of a want of due proportion between the food taken into the stomach and the oxygen absorbed by the lungs and skin."

This has led him to divide all alimentary substances into two classes, under the heads of *Elements of Nutrition*, and *Elements of Respiration*.

On the other hand, Dumas asserts, that fat, like all other animal principles, is generated by vegetables; "that they pass ready formed from them into the bodies of animals, that there they may either be burnt immediately, in order to supply the heat which the animal requires, or that they may be laid up in the tissues more or less modified, to serve as a reserve for respiration. With a view to verify this idea, we instituted many experiments, which all led us to recognise in the food of the herbivorous animals subjected to experiment, quantities of fatty matter superior to those found in the milk of the milch-cow, for example, or stored up in the tissues of the ox put up to fatten. By keeping an account of the fatty matter contained in the dung, and adding it to the quantity fixed, the sum obtained is still inferior to the quantity of fat which analysis discovers in the food of the animal. With these facts before us, it appeared to us natural to admit that animals assimilated directly the fatty substances of vegetables without modifying them at all, or modifying them but little."

The truth is, the formation of fat in animals has awakened a controversy between the two great chemists of Germany and France,—Liebig and Dumas. Liebig is of opinion, as has been already stated, that graminivorous animals *produce* fat from the elements of starch or sugar partaken of by them, these NOT being burnt up by the oxygen taken in during respiration; while Dumas,

with whom is associated Boussingault, considers it a fixed rule that animals produce neither fat nor any other substance capable of ministering to nutrition, but that every principle exists ready formed in the vegetables on which the animals feed: and certainly the multiplied and delicate analysis they have made of hay, maize, and other provender given to fatten cattle, fowls, &c., prove the existence of a substance closely resembling fat, as one of their constituents.

They contend that the fatty matters are elaborated in the leaves of plants in the form of a waxy principle, which, passing into the bodies of the hebivora, undergoes a partial oxidation, whence result the stearic and oleic acids met with in tallow. In carnivorous animals these are oxidised anew, and margaric acid is formed, which characterises their fat. Lastly, by a still higher oxidation, the volatile fat acids are formed which appear in the blood and perspiration.

This difference of opinion appears likely to be set at rest by a discovery lately made by Pelouge and Gelis, which is, that butyric acid—an acid hitherto derived from animal fat—may be formed by modifying the fermentation of sugar. This particular result is brought about by the presence of caseine in the matter undergoing the process of fermentation, and "the change of sugar into butyric acid takes place without any considerable increase of temperature, and without the presence of those energetic substances which could destroy the equilibrium or affect the vitality of the animal tissues; while this transformation is effected under very simple conditions, and in substances employed by Nature herself."

Now, if we associate with this the fact, that farinaceous matters undergo a ready conversion into a saccharine principle, we have a clue to explain how it is that these substances become so fattening to animals as it is well known they do.

The lecturer next proceeded to shew how digestion and other functions carried on in the animal economy receive elucidation by an application of chemical laws; also the formation of the various secretions, with their uses, particularly referring to bile and urine. Of the first of these he remarked:—

The use of bile in the living organism has been the subject of

much inquiry. That it is of considerable importance viewed as a secretion from the blood, by which this fluid becomes depurated, and also from the part it subsequently performs in the animal economy, since it has not been met with in the egesta, is unquestionable.

It has been found, that, when bile has been prevented flowing into the bowels by the formation of a fistula opening outwards, animals have become emaciated, and ultimately died. On the other hand, when the function of the liver is interfered with in a peculiar way, that fat in an undue quantity is deposited. This is seen in the enlarged liver of geese, for making the *pâté de fois gras*, and in the first stages of *rot* in sheep. It is evident, therefore, that the presence or non-presence of bile has something to do with the production of fat.

Dr. Kemp has lately advanced some ingenious views on this subject. He concurs with Liebig, that animal fat is formed by the assimilation of the non-nitrogenized portions of the food, of which starch may be taken as the type. It is, however, he says, obscure, since the composition of starch and fat is not the same, there being a large excess of oxygen in the first named when compared with the last; this element, therefore, must enter into combination in a manner as yet not understood. If the whole of the assimilated portion of the food pass through the thoracic duct into the system, it is evident that, in the chyle, we must have all that is necessary for the fresh deposit continually going on in the frame, whether of tissues or fat. Now the analysis of this fluid by Marcet and Macaire proves its elements to be so proportioned as to represent *proteine* in combination with another body capable of forming fats, and legitimately expressed by an empirical formula containing the elements of starch and *bile*. The presence of this last-named fluid appears to be necessary, otherwise the starch would be split up into binary forms, as carbonic oxide and acid, or carburetted hydrogen, as seen in hoven; or it would form sugar, as in diabetes.

It hence follows, that if proteine be withdrawn—that which constitutes the basis of the nitrogenized parts of the frame—the other principle must be employed for the formation of fat. Dr. Kemp concludes, "that in graminivorous animals, the bile, during the digestive operation, is deprived of its nitrogen in the form of

ammonia, absorbs oxygen, then enters into combination with the amylaceous parts of the food, and is thus absorbed, together with the proteine compounds. Further, that the object of the amylaceous portion of the food is not immediately to form fat, but, by combination with bile, to produce a compound containing the elements of fat, with an excess of oxygen for cartilage, gelatine, and other allied structures, which may be represented by proteine plus oxygen."

A clue is thus obtained to the oft repeated assertion, that the liver has to do with the deposition of fat in the body; and we may perhaps trace the formation of the fatty acids in butter and the production of milk to the same cause.

In reference to urine, he observed, that this fluid may be said to contain the soluble constituents of the ashes of the elements, the fæces the insoluble. This secretion in man has an acid reaction, the cause of which is still disputed. In the horse and cow it is alkaline, depending on the presence of the hippurate, benzoate, or carbonate of soda or potash. And we need not be at any loss to account for the alkalinity of this fluid in those animals, if we only bear in mind the character of the food they eat, it abounding with the carbonate of soda or potash.

In the urine of the herbivora the phosphates are seldom met with; but in the graminivora they may be present, as the soluble phosphates exist in grain; and these, too, have an alkaline reaction.

Thus we trace the character of the secretions to the nature of the food of animals.

According to Liebig, the organic acids in the urine of man and the carnivora are the *uric* and *hippuric*, with another nitrogenous matter (probably the colouring principle of urine), which latter substance, upon the access of air, resolves itself into acetic acid and a substance resembling resin.

The hippuric acid he considers a product of the organism, to the formation of which the elements of the nitrogenous aliments give birth. By decomposition it is resolved into benzoic acid; and the same metamorphosis takes place when the horse or cow is exercised or put to labour, since in both of these animals this acid is found.

Hippuric acid requires about 400 times its weight of cold water to cause it to undergo solution; it therefore cannot find its way

into the urine in any quantity, unless combined with a base; and this, in the majority of instances, is soda.

The proportion of this acid to the uric, in the urine of the human subject, has been supposed, by Liebig, to be equal. Others have doubted this, finding only one-third hippuric acid; but as this acid is formed from the nitrogenized constituents of the food, it is very likely to vary in quantity.

From the large quantity of carbon existing in hippuric acid, it has been thought that, besides its being the medium by which nitrogen is eliminated from the system, it also aids in the excretion of carbon, and thus compensates for the liver when its functions are impaired. The composition of dry hippuric acid, and the analysis, by Dr. Kemp, of the organic constituent of human bile, when placed in juxta-position, may render this clearer.

	Bile.	Hippuric Acid.
Carbon -	68·40	63·93
Nitrogen -	3·44	8·21
Hydrogen -	10·13	4·64
Oxygen -	18·03	23·22
	100	100

May not this throw some light on the disease designated red-water, or black-water, in cattle? In its first stages it is manifestedly connected with derangement of the digestive organs; and the liver soon becomes involved, proved by the fact that we have diarrhœa present. The urine now becomes dark-coloured, possessing a porter-like appearance; and then it is that the kidneys become *functionally* deranged, from their having to separate more than their natural quantity of carbon from the blood—this arising from the liver being no longer able to play its part; and at length they are *organically* diseased, and the impure blood, in an almost unchanged form, is allowed to pass through them.

When urine has become excreted, it quickly undergoes change, and the salts of ammonia are formed. This accounts for the ammonia met with in ill-ventilated stables; and its production is assigned to the urea, which, combining with the elements of water, forms the carbonate of ammonia disengaged.

This change is the result of decomposition by contact or catalysis. With the urea is excreted an albuminous or mucous substance, which, the moment it comes into contact with the air, undergoes a change, and becomes a ferment.

The following arrangement will render this more clear:—

1 Urea	-	-	-	-	C_2, N_2, O_2, H_4=60
2 Water	-	-	-	-	O_2, H_2=18
2 Carbonate of ammonia				-	C_2, N_2, O_4, H_6=78

It is true this compound of ammonia is not an energetic poison, but it may serve to render other deleterious compounds more volatile, while, at any rate, its presence in the atmosphere, to any amount, cannot be salutary. It has been assigned as the cause of ophthalmia by some persons, and others have gone so far as to attribute glanders to its existence.

Mr. Morton then went on to shew how the origin of certain diseases may be traced to chemical changes which take place; adducing more especially those involving the digestive apparatus, the urinary organs, &c., and how necessary a knowledge of chemistry is to combat them. Also how indispensable its principles are in the combination of therapeutic substances; in the counteracting of the effects of poisons, or the employment of antidotes, and also for the detection of the particular agent that has been the cause of death. Further, that they are essential to the veterinary surgeon in the purchase of the drugs and chemicals he employs, so as to prevent imposition and disappointment.

The lecture was closed by an attempt to remove an erroneous impression, that, to acquire a knowledge of the principles of chemistry, elaborate and expensive apparatus is necessary; and an earnest appeal was made to the student to acquire habits of industry, and a love of persevering research, the spring-time of life being the period when these are both most profitably and most easily acquired. "For if the spring put forth no blossom, in summer there will be no beauty, and in autumn no fruit: so, if youth be trifled away without improvement, manhood will be contemptible, and old age miserable."

The bust of Professor Spooner, in marble, was now brought into the theatre. Its execution reflects great credit on the artist, and the likeness is an admirable one. The pedestal bore the following inscription —

PRESENTED TO
CHARLES SPOONER, Esq.
PROFESSOR OF ANATOMY AND PHYSIOLOGY
AT THE ROYAL VETERINARY COLLEGE,
BY HIS PUPILS.

A TESTIMONIAL IN ADMIRATION OF HIS TALENTS,
A MARK OF THEIR ESTEEM AND REGARD,
AND A GRATEFUL ACKNOWLEDGMENT
OF HIS UNWEARIED ASSIDUITY.

SESSION 1843-4.

The presentation of it devolved on Mr. Robb, one of the senior students, who nobly performed his task. There was a warmth and a sincerity in his address which impressed every one present, and caused it to be received with repeated acclamations.

After some congratulatory and introductory observations referring to the numerous auditory with which he was surrounded, Mr. Robb proceeded nearly as follows :—

Gentlemen,—The honour of representing the body of students on this occasion has been conferred on me, and I assure you it is a duty which is highly gratifying and agreeable to me. Nevertheless, I could have wished that it had been reserved for those who gave the first impulse to the desire of tendering to Professor Spooner our most grateful acknowledgments for the important assistance we have received from him. I state but the truth when I assert, that every student exhibited a disposition to carry out the intention of the suggesters as soon as communicated, and it was transmitted from one to another like the electric fluid traversing the elements of matter. It was proposed and responded to almost in the same moment of time by all—by those of you who are so happy as to be Englishmen—by those who love their own blue mountains of Scotland—and by the sons of green Erin.

It is most fortunate for me that you are all well acquainted with Professor Spooner's high qualifications, with our deep obligations to him, and more especially with the indefatigable yet unwearied exertions made by him for our benefit during the last session. It

may be said, that the proficiency of the student redounds greatly to the honour of the teacher: granted. But this kind of reasoning may be adopted with regard to every good and benevolent action. He is truly a fortunate man, and an excellent member of society, whose own interests are so intimately connected with the good of others. Without fear of contradiction I state, that Professor Spooner, as a teacher, is much and deeply interested in the onward progress of his students, both in and out of the lecture-room. Nor must I pass by in silence, nor suffer malignant forgetfulness to lose sight of the readiness with which he at all times communicates information. Who among us has ever in vain applied to him? Do we not all know that the most simple, the most trifling question connected with our studies here, is sufficient at any time to arrest his attention, and to cause him to stand still amid groups of listening students, and to traverse, over and over again, the same ground he has so often gone over before? His high professional attainments, and the facility he has of communicating to others the knowledge he himself possesses, are well known to us, and to the great body of the profession. Even descriptive anatomy—that dry subject—is rendered fascinating by his manner of treating it; and by a clear and spontaneous flow of language, and by numerous allusions to physiology and pathology, he adds beauty and interest to the edifice, while he strictly preserves its stability by the clearness and precision of his demonstrations.

These, Gentlemen, are some of Professor Spooner's accomplishments, which are of inestimable value to us and to this school. Nor are they less so, when we consider, that many come here for instruction who have but very crude and imperfect ideas of that assemblage or bundle of qualities which constitute what we call a horse, and who, notwithstanding all their anxious desires, may find some difficulty in applying the principles of medicine to the treatment of an animal with whom they are so indifferently acquainted. And they are no mean accomplishments, when we remember, that many resort to this profession whose minds have not been trained and inured to habits of hard study and of deep reflection, and who sometimes venture not beyond these walls for that information which is absolutely necessary to the successful practice of their profession. I wish, Gentlemen, I could recount to you his private virtues, for I know they are many.

Nor let it be considered as any detraction from what I have said of him, that much that I have stated is applicable likewise to his honourable and talented colleagues who now surround him.

The winter campaign has been opened, and our teachers are about to resume their arduous duties. Let us do our duty to them. Let them not contemplate, as often does the industrious and disappointed husbandman, his labours wasted on a barren soil; nor let the good seed now about to be sown be choaked by a profusion of noxious weeds. Our talented professor of chemistry has this day ably and eloquently delivered the introductory lecture. He has shewn us the ground—he has exhibited to us a bird's-eye view of the battle-field, and of the position and strength of the enemy with which we have to contend; and, like some ancient warrior in front of his army, knowing full well the important time when to harangue his soldiers, he urges us on to deeds of noble daring for the promotion of science. Nor has he been unmindful of that essential branch of natural philosophy which it is his peculiar province to teach, and which, doubtless, he would do with even greater advantage to us, and certainly more satisfaction and ease to himself, but for the want of certain arrangements and conveniences with which he will, probably, be furnished at no very remote period; when chemistry shall be more highly appreciated, and the light it is shedding on physiology and pathology more generally acknowledged.

And now, Sir—Professor Spooner—having been delegated by my fellow-students to present to you this marble bust, in their name I most respectfully beg your acceptance of it—to be kept by you and your successors for ever, as a memorial that one, at least, of your family, in times gone by, stood high and pre-eminently distinguished in that position in life which he had been destined to fill, and was esteemed and admired for his high talents and attainments by those who had been placed in a most intimate and important connexion with him. This bust, Sir, is not made of any very precious material; it is, in fact, constituted of very common ingredients. We regret that it is not of greater intrinsic value; but, Sir, you will remember, that the blessings of the Gods were not so effectually secured by costly as by pure oblations;—that the crown of rosemary and of myrtle, with consecrated cake and crackling salt, are not less acceptable than a great slaughter

of sheep, if but an innocent hand touches the altar; and we know, Sir, that you will take into consideration the *animus* with which this offering has been presented.

Mr. Spooner, in a comparatively few but well chosen and expressive words, acknowledged the high compliment that had been conferred on him by his pupils. It was to him a proud day, when he was assured, in the handsome manner he had been, that his endeavours to assist the student in the acquirement of knowledge had been successful, and were so much appreciated. Mr. Robb had been pleased, as the representative of the class, to express himself in most glowing and flattering language; yet, although he confessed he felt at the present moment exceedingly gratified, indeed, so much so that his feelings were not to be expressed by words, still he could not believe that he merited all the encomiums that had been passed on him. He had but done his duty; his future efforts, however, should give proof how highly he estimated the presentation, which had been made to him, and, as it was in a material that is imperishable, so should be his gratitude.

Professor Sewell then stated, that the disease *rabies canina*, erroneously called hydrophobia in the lower animals, had for a long time been a subject of more than ordinary interest and inquiry with him; and with a view to further the investigation of the malady, more especially for the finding out a means of cure, he would readily give the sum of FIFTY GUINEAS, or a GOLD MEDAL of that value, to any qualified graduate of the Royal College of Veterinary Surgeons who proved successful in the cure of a well-attested case of this disease in any animal by the following process of transfusion:—

Take away from any vein, which the restless state of the animal renders most convenient to open, as much blood (by measurement) as it can bear short of causing death; then return, by transfusion, one-half of the quantity, or less rather than more (so as to avoid the consequences of repletion), of the blood of a healthy animal of the *same* species; then secure the vein by ligature or other means, and leave the animal undisturbed, watching the result.

Horses, cattle, and sheep, are preferable subjects for this ex-

periment; sheep especially so, from their being more easily controlled and secured by the fewest number of assistants.

The operation is simple, and easily performed, should the animal not make continued and violent struggles to release itself from confinement, as is sometimes the case when under any other operation. In ordinary cases, it is no more trouble than the withdrawing of blood from the jugular vein; and it has been done in a standing position on several occasions; in some instances with a view to eradicate disease, and in others to ascertain if the blood of a diseased animal would produce the same malady in another.

Any veterinary surgeon knowing an animal or animals to have been bitten by a rabid dog, and desirous of trying the experiment, shall have the transfusion apparatus sent to him, so that it may be in readiness when the disease manifests itself.

Mr. Sewell said, that he had communicated his wishes to the council of the Royal English Agricultural Society, so as to obtain the co-operation of its members in carrying out this inquiry; and he would willingly pay every expense connected with sending up to the College, from any part of the country, such sheep, lambs, or calves, as may, unfortunately, have been bitten by a rabid dog.

He mentioned small ruminating animals, only as being more easily managed when labouring under the worst or more violent symptoms of the disease than horses, cows, or bullocks, which under such circumstances are not only almost unmanageable, but highly dangerous; and when such were intended to be sent to him, he would feel favoured by a previous notice by letter. The animals thus requested might be conveyed in the ordinary railway trucks or cars, or sent by canal boats. A sheep or two might be put into a crate used for earthenware, and the expense of engaging an entire car be thus obviated; while the animals would be less annoying to the railway servants. Should the disease shew itself on the journey, the animals should be tied by the legs, and be well littered with straw. Net muzzles might be worn, or sent along with the animals in order to be in readiness. Mr. Sewell has, however, never had any fear of rabies being produced by the bite of any animals but those of a carnivorous kind, including swine as such. Of all the numerous cases of canine madness he had seen in horses and other animals, he had not observed a single instance in which they were unable or unwilling to drink water

freely. He had always found the disease commence (with a single exception) from the third to the sixth week after the bite had been inflicted. If, therefore, it should not manifest itself in the stock sent to him by that time, he would return the animals to their respective owners, free of expense, if requested to do so.

In the evening of the same day the Eighth Anniversary Meeting of the Veterinary Medical Association was holden at the Freemasons' Tavern.

The President, Professor Spooner, presided.

Among the visitors were J. Curtis, E. Nursey, R. Orton, J. Quick, J. Reddish, and Erasmus Wilson, Esquires.

The veterinary surgeons present were Messrs. G. Balls, W. W. Barth, E. Charles, W. Ernes, W. Field, J. Field, R. L. Hunt, G. A. Lepper, F. W. Moss, C. T. Shorten, W. Smith, J. Turner, W. Youatt, and the Treasurer and Secretary. A large number of students was also present.

The Secretary read the following

REPORT FOR THE EIGHTH SESSION, 1843-4.

It is an ancient and time-honoured act to offer with the return of the anniversary of an institution a retrospective address. It shews what onward progress has been made; or, should the reverse have obtained, it excites to the seeking out of the cause of retrocession, and the adoption of such measures as will prevent its continuance.

In my last I urged the necessity of perseverance; and did I not do well?

> "There is no remedy for time misspent,
> No healing for the waste of idleness,
> Whose very languor is a punishment
> Heavier than active souls can feel or guess."

The similarity of these addresses may, perhaps, have rendered them insipid, and awakened a wish that another pen were called into requisition to indite them. The performance of his duty is the only apology the writer has to offer for thus obtruding himself; and at once, without further preface, he proceeds to give a review of the past, adopting the like divisions, and in the same order, as have

been usually made; feeling assured that, at the close, it will be found that the past session of the Veterinary Medical Association has not been less fruitful than any which has preceded it.

Essays.

The pages of *The Transactions* have been enriched by an elaborate Essay on the Skin, by Mr. Erasmus Wilson, read on the previous session; but press of matter prevented its introduction in a volume much enlarged beyond its prescribed limits. To him we are likewise indebted for an account of the supposed manner in which pus becomes concreted and compressed into forms, when imprisoned and retained within a cavity. It had reference to a case by Mr. Hunt, that appeared in a previous volume of *The Transactions*.

Next in importance will come the Prize Thesis, by Mr. Pearson Ferguson, on the Anatomy and Physiology of the Eye of the Horse. He is much to be commended for his praiseworthy zeal, the large silver medal having been borne off by him during two consecutive sessions; while it affords a proof of the ardour with which he pursues his professional avocation, from which both profit and honour cannot fail to redound to him.

This was succeeded by the completion of the Secretary's Essay on Calculous Concretions in our domesticated Animals, which, if it contained nothing new, may at least lay claim to this,—it concentrates many highly interesting and valuable illustrative cases scattered throughout the pages both of the *Proceedings* and *Transactions of the Association*; and he thus publicly acknowledges the many communications he received from members of the profession, by which the worth of the thesis was considerably enhanced.

It is gratifying to know, that an important division of the education of the veterinary student, namely, the diseases of cattle, sheep, &c., which at one time found no place, and but little esteem, now assumes a prominent position. The early part of the session witnessed the introduction of Essays on Blackwater in Cattle, by Mr. J. A. Hughes, and Mammitis in the Cow, by Mr. A. Lepper. These were followed by papers on Hepatitis in the Horse, by Mr. W. Johnson; on Pneumonia, by Mr. J. H. Hill; on Diseases of the Kidneys, by Mr. W. S. Harris; on Broken

KNEES, by Mr. A. B. Henderson; ON DISEASES OF THE MOUTH, by Mr. H. Wheeler; ON OPEN JOINTS, by Mr. H. Emms; ON THE ACTION OF CALOMEL, by Mr. T. Leech; and ON QUITTOR, by Mr. W. Ernes, who, after ably reviewing the different modes had recourse to, both by continental and English practitioners, for effecting a cure of this too frequently annoying and protracted disease, advocated, in extreme or severe cases, the entire ablation of the cartilage, lucidly detailing the method by which it may be extirpated, and adducing several successful cases confirmative of his views. To Mr. Ernes we are likewise indebted for the translation of several interesting articles from *La Clinique* and *Recueil de Vétérinaire*. This division embraces a larger amount than has been usually ranged under this head, and in which there is much variety of subject, if no novelty.

The Council have to regret the fewness of the competitors for the prizes. From practitioners only one essay has been received, subject "The Minute Anatomy of the several Tissues which form the connecting Medium between the Coffin-bone and the Crust—their Elasticity or Non-Elasticity, &c. to be especially considered." The author, although in the anatomical description clear, full, and correct, lost sight of several important physiological particulars, and by no means met the wishes and intentions of the propounder of the theme. It was, therefore, resolved that the same subject should be given for the present session, the author of the received essay being at liberty to make any alterations or additions he might please.

Two essays were received from students. One was most unfortunately and as unaccountably lost; the other having been carefully perused by the Council, was unanimously deemed worthy of the silver medal. On opening the sealed envelope, its author was ascertained to be Mr. J. K. Lord.

COMMUNICATIONS.

Mr. BATCHELDER communicated the history of a case of lameness, the cause of which was obscure, but arising, as he conceived, from a branch of the metacarpal artery taking a spiral course over the posterior part of the perforatus tendon: its extirpation, at any rate, was followed by a removal of the pain and lameness.

The cases of hypertrophy, with stricture of the œsophagus, by Mr. W. Smith, and of atrophy of the same tube, with loss of power of the muscles of the larynx, by Mr. W. Stanley, may be associated together, being rare deviations from normal condition. The inhumation of a horse for sixteen days, by Mr. J. J. Hughes, and the fracture of both femurs during an operation, by M. Desfarges, are also both unusual occurrences. The recital of the last-named case elicited from Mr. Ferguson an instance of the head of the femur being broken off, and the neck of the bone entering the acetabulum, which occurred in the practice of M. Leblanc.

The case of rupture of the bladder and stomach of a race-horse, by Mr. J. Markham, was likewise most extraordinary.

The cases of poisoning of horses by arsenical fumes, by Mr. H. Rickard; of a horse by savin, by Mr. R. Hutton; of four bullocks by yew, by Mr. R. Read, with his view of the manner in which this vegetable poison acts; and of three greyhounds by nux vomica, or its alcaloid, strychnia, by Mr. J. F. Sewell, are replete with instruction.

The instances of pericarditis, and the pulmonary epizootic in oxen, by Mr. W. Robinson, with those of abscesses in the pulmonary vein and kidneys of a heifer, by Mr. R. Hudson; of ventral hernia in a cow, by Mr. Williamson; of long fœtal retention, by Mr. W. P. Toll; and of ascites in the same animal, by Mr. Chase, are proofs of the assistance pathology is receiving from this division of veterinary medicine, and how much has been lost from the long neglect it has experienced. Nor must the more than ordinarily interesting case of fatty liver in the ox, by Mr. R. Read, be forgotten; nor the instance of the like lardaceous deposit in the same gland of a sheep, by Mr. W. Thacker; from whom was also received an account of the mere insertion of a seton in the elbow for a tumour creating so much irritative fever as to cause death.

The cases of ruptured colon, by Mr. T. Taylor, and of intussusception, by Mr. A. Howarth, are by no means unusual lesions, yet occasional introduction of such may prove of service. But under the same category we cannot place the case of tuberculated liver with abscesses in the stomach and spleen, by Mr. W. Robinson; nor of a pedunculated tumour in the duodenum; nor the perfora-

tion of the palate by the elongation of a tooth, by Mr. J. Climenson, these being more rarely met with.

The instance of tetanus induced in a foal by retention of urine, as related by Mr. A. Green; of the operation for umbilical hernia being productive of the same disease, as stated by Mr. Simonds; of fracture of the sacrum also causing it, as communicated by Mr. Crawford; with two instances of contusions giving rise to it, as recorded by Mr. T. Darby and Mr. J. G. Webb, and the different modes of treatment advocated, serve to shew how many lesions may become a cause of this dreaded nervous affection, and how the *vis medicatrix* occasionally resists its fatal termination.

The action of the proximate principles of vegetables on the nervous system, as experimentally ascertained by Mr. Gresswell, although not strictly applicable to the horse, is not without interest.

A few of the "valuable contributions to veterinary pathology" by Mr. Purves, of the Honourable East India Company's Service, room has been found for, but a goodly number yet remains in reserve.

PATHOLOGICAL CONTRIBUTIONS.

Again, our friends did not forget us during the recess; and, at the commencement of our labours, we were enabled to place on the tables several most interesting morbid specimens, and during the session many additions were made to them.

From Mr. T. D. Broad was received the flattened trachea of a pony, which, during life, had manifested no inconvenience from this abnormal deviation. Likewise, a cow's tongue, considerably enlarged and indurated. Subsequently he forwarded a portion of the medulla spinalis of a colt, the theca of which was in a highly diseased state, and had been the cause of paralysis.

Mr. Woodger furnished several singularly disorganised parts. The trachea from which he had removed a portion, and in which the inflammation supervening had resulted in the formation of a large ossific tumour, is of somewhat rare occurrence. Allied to this were the small ossific tumours existing on the plexus cho-

roides of the brain, giving rise to phrenitis. The changes which had taken place in the larynx of a horse, and the strange rupture that occurred in the ileum of another, a similar one being exhibited at the same time by Mr. Tegg, are all deserving of notice.

From Mr. J. Tombs was received a portion of a softened and ruptured liver of a horse, accompanying the history of the case. Also the diseased bronchial glands of a cow. From Mr. T. A. Nobbs, a mass of carcinomatous tumours taken from the abdomen of a cow.

From Mr. W. Cox, a foal, whose urachus remained open, and although he endeavoured to close it, the little animal died from marasmus. A *post-mortem examination* shewed the kidneys to be much enlarged and in a highly diseased state.

From Mr. T. Harris, the heart of a horse in a strangely diseased state.

From Mr. Balls, a mass of disorganised viscera, taken from an animal which, during life, had shewn no indications of these changes taking place. The instance of atrophy of the postea spinatis muscle by him, and of extensive laceration of the same muscle by Mr. Howarth, may be classed together.

To Mr. J. Wells we are indebted for a specimen of ruptured stomach, and extensively diseased mesenteric glands, occurring in a cart-horse.

The case of irreducible ventral hernia in a mare, by Mr. J. Hutton, is instructive, since it shews how necessary a knowledge of anatomy is to the pathologist. The lesion that had taken place was described by Mr. Barth, and received further elucidation from several cases related by Mr. Simonds.

The acute and quickly fatal cases of laryngitis, communicated by Mr. G. Bainbridge, might well alarm the owners of the animals, since the aid of medicine was rendered nugatory by the severity of the attack.

Among the aids the veterinary surgeon receives in his endeavours to minister to "the ills that flesh is heir to"—the tools with which he works—should be first mentioned, the new form of tracheotomy tube, invented by the President, with a pair of cutting compasses to remove circular pieces of the trachea during the operation of tracheotomy.

The horse-hair seton, advocated and long used by Mr. Dickins, suggested an improvement in the seton-needle, so as more easily to carry the cord, by the Secretary; who also proposed a dilator for the urethra, when extracting a calculus from the bladder either by lithrotity or entire.

A buckle, to prevent the return of the uterus in cases of its inversion, was exhibited by Mr. T. Taylor.

The firing-iron has undergone a modification in its form, which is thought an improvement by the suggester, Mr. A. Green. Mr. Arnold, instrument-maker, presented a portable seton needle, and Mr. Read exhibited a lengthened elastic tube, which, he anticipated, would prove available in cases of fæcal accumulation in the larger intestines, or of distention by gaseous elimination. Some experiments being instituted with it by the President, they negatived his expectations.

Mr. W. G. Taylor proposed the dried amnion of the cow as a substitute for bladder, a material likely to prove available; and Mr. J. Lord has given an improved form for the neurotomy knife.

Our President, Mr. Spooner, has contributed largely during the session. The morbid parts brought before the members from time to time were described by him in his usual lucid manner, thus supplying any deficiency that may have been felt from a more detailed account not having been furnished by the contributors. The cases of glanders which occurred in the College Infirmary drew from him some terse and pointed observations on this fatal malady; as did the instance of strangulated mesenteric hernia, and other cases. In the debates, too, he frequently took part, and both elicited and communicated much practical and valuable information.

Nor has our Treasurer, Mr. Simonds, been slow in lending his valuable assistance. Many very interesting cases which occurred in his private practice were related by him: especially may reference be made to several instances of hernia occurring in the horse, cow, and pig; to cases of fracture, the result of muscular contraction, and to diseases of the teeth giving rise to symptoms similating glanders; while his removal of a cystic calculus by lithectasy is, it is believed, the first placed on the records of veterinary medicine. The lesions that had taken place in diseased parts taken

from animals, more particularly his province to dwell upon, were usually described by him.

The closing meeting of the session was a CONVERSAZIONE, held with a view more cordially and frequently to bring together the elder members of the profession and the students; one of the leading objects had in view at the formation of the Association, but never yet attained. The writer of this report has often pressed this subject, and solicited attention to it, at the same time almost fearing his motives would be misconstrued. But very few practitioners have ever deemed the hebdomadal meetings worthy their countenance and support: the reason is not known, since the reverse of this could not have failed to have profitted our common cause. At the meeting, now being referred to, although it was largely attended, yet the absence of many friends was regretted. It will, indeed, be long before its remembrance is effaced; and although it was the first attempt made, such was the success attending it, that its repetition is anticipated. The admirable description of the mange insect, so kindly and ably given by Mr. Erasmus Wilson, will ever distinguish it; while the readiness with which Mr. Ellis illustrated his ingenious mode of detecting arsenious acid in cases of poisoning by that mineral substance, and the assistance afforded by several other scientific friends, rendered it both an instructive and a pleasing termination to the session; the meeting possessing all the charm of novelty, while utility was neither sacrificed nor lost sight of.

To the LIBRARY many works have been presented, and it is extremely gratifying to report, that the editors of the "Recueil de Veterinaire" and "La Clinique Veterinaire" have solicited an exchange of journals. It was most gladly received, and as readily acquiesced in. Union by such bonds as these it will ever be the desire of the Council to strengthen and increase.

A large accession of members has taken place during the session, and certificates have been awarded to 45. Of fellowship, certificates have been presented to 10; and of these the Council have considered Mr. A. Lepper for his essay on Mammitis, Mr. W. Johnson for an essay on Hepatitis, and Mr. H. Emms' paper on Open Joints, deserving of the especial thanks of the Association, by which they rank as honorary fellows.

Since our last Anniversary the following of our members have

entered the lists with man's insatiate enemy, death, and have fallen in the unequal contest:—

Mr. J. Frampton, late of Swindon
Mr. J. A. Godwin, late of Birmingham
Mr. W. S. Harris, late of Bermuda
Mr. M. W. Lloyd, late of Madras
Mr. A. Sewell, late of London.

We, too, shall soon be called on to resign

"This earthly load of death,
Called life, which us from life doth sever."

May we, then——But I will let serious thought and meditation fill up the aspiration.

It has been said that "our life is a continual combat, in which we are successively conquerors and conquered, executioners and victims, frequently unjust, but more commonly oppressed; and all our intelligence, all our acts, and all our activity, have no other object but to dispute with that which surrounds us, and guard this frail existence, which is threatened at every step. Sometimes this war is with the elements; at others with the temperature, which is too hot or too cold; with the tempest, which crushes us beneath its force, or consumes us as a piece of chaff; with the monsters of the deep, which surprise us on the waters; with the beasts of the forest, which prowl about our dwellings; or with the insect, so small that it might be crushed beneath the nail, but so powerful in its invisible labour, that it works our blood into a state of fever, and consumes us with an intolerable itching: lastly, with our irregularities, our excesses, and our own suicidal acts.

"Like bubbles on the sea of matter borne,
They rise, they break, and to that sea return."

And is this all? Can reason do no more? Is this the whole of being? Is there no hereafter? Then is man most miserable. But—

"Whence this pleasing hope, this fond desire,
This longing after immortality?
Or whence this secret dread and inward horror
Of falling into nought? Why shrinks the soul
Back on herself, and startles at destruction?
'Tis the Divinity that stirs within us;
'Tis Heaven itself that points out an hereafter,
And intimates eternity to man."

And who can estimate the value of a soul immortal?

"Behold this midnight glory; worlds on worlds;
Amazing pomp! Redouble this amaze:
Ten thousand add, and twice ten thousand more;
Then weigh the whole; one soul outweighs them all,
And calls th' astonishing magnificence
Of unintelligent creation poor."

The Treasurer's accounts, which are appended, present a far more favourable appearance than they did at the close of the last session. Every outstanding liability has been disbursed, and a small balance remains on the year, besides many subscriptions being still due for the TRANSACTIONS.

In conclusion, it only remains for me to express my fervent hope, in which I feel assured I shall be joined by all present, that, with each returning Anniversary of the Veterinary Medical Association, reports of its continued and increasing progress towards the attainment of that for which it was established may be laid before you. Science should always be progressive; and, at the present day, each and every division is making most rapid advancement; and, surely, our's must not be permitted to stand still. All required to perfect what has been so nobly commenced is, a cordial co-operation amongst us. Let us, then, not slacken in well doing, but continue to emulate each other; being convinced that that which has truth for its end and object cannot ultimately fail of accomplishment. The diffusion of knowledge, like mercy, is twice blessed;

"It blesses him that gives and him that takes;"

and who would not participate in so beneficent and so ennobling an act?

I have only to add, that the subjects chosen by the Council for the prize theses for the present session are, for Practitioners,

"*The Minute Anatomy of the several Tissues which form the connecting Medium between the Coffin-bone and the Crust; their* ELASTICITY *or* NON-ELASTICITY *to be especially considered; together with the varied* MOVEMENTS *resulting from that bond of union in the Foot of an*

adult Horse, BOTH AT HIS WORK AND DURING REST IN THE STABLE, *under all circumstances of sustaining the superincumbent weight, and otherwise.*"

For Students,

The Anatomy, general and minute, of the Stomachs of the Ruminants; with the Physiology of Digestion.

W. J. T. MORTON,
Secretary.

THE TREASURER'S GENERAL ACCOUNT FOR THE EIGHTH SESSION, 1843-4.

Cr.	£	s.	d.
By Sale of *Transactions*	152	16	0
Members' Fees	111	6	0
Members' Fines....	3	19	6
Balance on Dinner..	0	2	0
	£268	3	6

Dr.	£	s.	d.
To Printing *Transactions*, &c.	106	12	0
Reporter (with balance of last year).....	60	0	0
Engraver.....	16	3	6
Postages, Bookings, &c.....	19	5	9
Books and Periodicals	10	2	6
—— binding of....	3	19	8
Prize Medal.....	3	3	0
Committee Meeting..	1	10	0
Carriage of Specimens	2	9	11
Gratuity to Porter (two years).....	4	4	0
Printing Certificates, &c.	4	5	0
Stationery	1	0	11
Salary to Secretary for 1843 and 44.....	20	0	0
Ditto, Librarian, ditto	10	0	0
Subs. for *Transactions* not paid last session	3	10	0
Balance on session..	1	17	3
	£268	3	6

The President having presented the silver medal, and certificates of merit, to the successful competitors or their representatives, J. B. SIMONDS, Esq., delivered the following

ORATION.

Gentlemen,—The founders, and those who shielded the Veterinary Medical Association during its infancy, wisely determined that, at the commencement of each returning year of its existence, an address, to celebrate its natal day, should be delivered by one of its members, and that task has now devolved on me. When it was announced at the last annual meeting that I was to give the next oration, I will confess to you that I felt much gratification from the high honour which was thus conferred upon me, and I hesitated not to comply with the request. If, however, feelings of, I hope not, unjustifiable pride did then occupy my mind, how have they been subdued by the recollection, that those who preceded me did so much delight us by the eloquence with which their lucid addresses teemed! Anxious as I am, I still feel unable to imitate these bright examples, at least, with sufficient effect, even to cause their lustre to be made more apparent by the little light reflected from this feeble attempt; for, as in the natural system of the universe, amid the galaxy of luminous bodies above us, how insignificant appears the twinkling of a distant solitary star! And let it not be forgotten by those who may succeed me in the performance of this duty, that their difficulty, like my own, is rendered not the less by being surrounded by men eminent as members of our own profession, and also by those whose talents and attainments do honour to the science of human medicine. At a meeting like the present, when the members of a scientific institution are met to commemorate its formation, and to congratulate each other upon the success which has attended its proceedings, it is customary for a retrospective account of its acts for the past year to be given: such details, however, do not belong to an address of this kind; therefore I shall not attempt to introduce them, nor intrude further on your time with this subject, but refer you to the particulars contained in the able Report of our zealous

and indefatigable Secretary. I may, however, congratulate you as members of a society established for the advancement of science, that the time has again arrived when, like giants refreshed with new wine, each is found ready to buckle on his armour, and again prepare himself to battle with the empiricism, ignorance, and superstition, which still clog the wheels and prevent the onward progress of the veterinary art.

Let us then inquire, without more especially alluding to the benefits which we all hope to see derived from the weekly meetings and discussions that are about to commence, whether, on looking back upon the workings of the Association, we do not there observe assurances that the coming year will, like those that have preceded it, contribute towards the attainment of our objects, and, at its close, be crowned by the honour of having, by the diffusion of knowledge, been the means of assisting Science in her never-ceasing efforts to advance.

We have now entered upon the ninth year of the Society's existence, and we find that it has been gradually growing in strength as it has advanced in years: who therefore can apprehend danger now its childhood has passed and its manhood arrived? Or who, I would ask, will be bold enough to gainsay the assertion, that no similar society in this or any other country has contributed more to assist Veterinary Science in her efforts to alleviate the diseases of our domesticated animals? The ninth year, did I say? Ay, eight years have passed away, and now the ominous number nine is come. Why, here's the curse of Scotland!—be it so!—We have, however, no gloomy reflections; or, did we need the power of the talisman to remove the curse and give us pleasing hopes, like him we would call doggrel poetry to our aid, and say—

> The year which is come, will, as those gone before,
> Prove there's luck in odd numbers, O! Rory O'More.

But to return: — Firmly established as is this Society, rapid as have been the advances of the veterinary art, elevated as it now is to a legalized profession, and extended as are the opportunities for its votaries to obtain a knowledge of the maladies of our different animals, those only can hope to occupy an exalted

position, who, having embarked in this good cause, conduct themselves as though the success attendant on these advantages depended altogether upon their individual exertions. If we do not advance, we must retrograde; the latter is a disgrace, the former an honour. And who among us would wish to fall back into the thraldom of ignorance and empiricism from which we have emerged? Surely no one who claims membership with our body, and who is desirous to assist in the onward progress of his profession.

I must not, however, dwell too long on this topic, interesting as it is, but proceed to the consideration of that which I have selected as the theme of this Oration, namely, the importance to be attached to, and the advantages which will be derived from, the veterinary surgeon becoming conversant with a knowledge of the diseases of our flocks and our herds, so that he may apply his information to the alleviation and removal of their several maladies. In considering this subject, you must excuse the remark that, as Englishmen, we are all far too apt to take a pound-shillings-and-pence view of every question, and to act so that we may not be losers by a speculation, when such is the project, or to incur what at first sight appears to be too expensive a plan for managing our affairs: hence, probably, one of the causes why our cattle and our sheep have so long been entrusted to the care of uneducated pretenders and village smiths, and that at the time when disease is making sad havoc among them, and death daily increasing the number of his victims. These men can and do proffer their services, and exercise what little skill they may chance to possess, for such a remuneration as the properly educated veterinary surgeon cannot possibly do. How often does the cattle proprietor or agriculturist who takes this narrow view of the subject imagine that he is adopting a frugal method; but how great the errors which attend the carrying out his impressions, and how many the losses which entirely depend upon this wrongly conceived plan of economy! Death sweeps off many animals that superior skill would have saved; and even with those that rally, their recovery is too often prolonged, and frequently they are rendered valueless by the blunders and conceit of the would-be veterinary surgeon. I cannot, therefore, refrain from calling upon all owners of cattle to abandon

those ill-judged notions of parsimony, since such are not only detrimental to their own interests, but also highly injurious to the prosperity of the community. We learn, from well-founded calculations, that the worth of our cattle and sheep is little if any thing below 120 millions sterling; and all who have endeavoured by their writings to effect a reformation in the manner of treating diseased cattle have loudly complained of the immense value of British property which is thus placed at stake. Among others, the learned author of the Works on Cattle and Sheep, in the Library of Useful Knowledge, after having furnished us with the details whence these deductions of their value are drawn, observes, with much force and truth, that there are two great sources of the mortality of cattle and sheep and the loss of agricultural property; and that it is difficult to say which is the worst,—the ignorance and obstinacy of the servant and the cowleech, or the ignorance and supineness of the owner. But powerful as may have been, and even now are, these sadly to be regretted causes, we nevertheless cannot lose sight of the fact, that until of late years few efforts were made in this country to place the education of the veterinary student on such a footing that he should go forth from his professional seminary fully conversant with the importance of this subject, and well informed on the nature and treatment of the diseases of cattle, so that science might be brought to grapple with the empiricism of the cowleech and the carelessness of the agriculturist. It however becomes me not to dwell on these matters, nor to speak at greater length upon the contrast exhibited by the present state of things, further than to observe, that strong efforts have been made, and some advantages are gained, which induce me to cherish the hope that the base of a superstructure is laid which will hereafter do honour to this great nation, and be the means of saving much of her now sacrificed wealth.

It is generally admitted, that, in this country, veterinary medicine, as applied to the horse, stands in so proud a position, that it will scarcely allow of a comparison with its neglected and degraded state prior to the establishment of our alma mater. To the inquiry, as to what causes have been chiefly instrumental in advancing our acquaintance with the diseases of the horse; it must be answered, the inculcation of pathological principles, founded upon an inti-

mate knowledge of the structure and functions of the several organs of his frame. Who therefore can doubt, now that a proper share of attention is given to the anatomy and physiology of other domesticated animals, that the veterinary surgeon will possess less knowledge of *their* complex and various diseases?

Our cattle and our sheep ought long since to have received more of our attention, as among them we find epizootic affections to be more common than with other animals that are rendered subservient to our wants and uses. At this moment England is having her numbers daily thinned by one of these sad visitations; but fatal as has been this disease, uncontrollable as appear to be its effects, can any one doubt that its victims would have been multiplied to a fearful extent had no attempts of a scientific nature been made to ascertain its true character, and to stay its devastating influence?

However much we may regret this great destruction of property, serious as has been this loss to the agricultural community, we would fain indulge a hope that good may result from it, by its proving a powerful means to shew the value of veterinary science; for, surely, conviction can never have been carried so home to the proprietors of cattle of the inefficiency of the boasted skill and loudly proclaimed knowledge of the cowleech and quack. We may here see that empiricism has received another check. Let us add to this the advantages derivable from extended information on the part of the veterinarian, and no one will doubt that our fervent wishes will be thereby realized. Allusion has just been made to the frequency and destructive character of epizootic diseases, and it will be both interesting and instructive to inquire into the history of these affections; but my limits will not allow of more than a hurried sketch. The most ancient records of both Scripture and Pagan history make frequent mention of them; and, in the time of Moses, we first learn that Egypt had her cattle swept off by the "murrain," a term frequently employed to designate this class of maladies. The cause of this dreadful scourge was the disobedience of Pharaoh to God's commands, in detaining the children of Israel; and we learn that all kinds of animals fell victims to the visitation. "The Lord did that thing on the morrow, and all the cattle of Egypt died." Are we to look upon this as a just punishment to sinful man, employed on a specific occasion, and to cease for ever afterwards? Or,

rather, may we not venture to opine that here was the beginning of those maladies which governed by, to us, certain unknown laws, were destined, from time to time, to lay low the flocks and herds of other nations, sparing not even man himself? However much their origin or causes may be beyond our ken, we have positive proof of their effects; and, since that period, epizootic diseases have been so frequent, as to attract the attention of historians in all ages and countries. To the early poets of Greece and Rome we are indebted for accounts of some of these; frequent allusions being made to them in the writings of Homer, who flourished about 900 years before the Christian era. And, alluring as it is to follow the flights of a poetic genius in his powerful narration of sad events, we must still receive it with some degree of caution, as truth too often is sacrificed to the poet's vivid ideas and figurative imagery.

Virgil and Ovid are also among the poets of Rome whose graphic descriptions of these direful maladies are preserved to us. A quotation from each might be thought necessary, but I shall content myself by introducing a passage or two from Virgil.

Here, from the vicious air and sickly skies,
A plague did on the dumb creation rise:
During the autumnal heats the infection grew,
Tame cattle and the beasts of nature slew.

* * * *

The steer, who to the yoke was made to bow,
(Studious of tillage and the crooked plough)
Falls down and dies; and, dying, spews a flood
Of foamy madness, mixed with clotted blood.

* * * *

Tisiphone, let loose from under ground,
Majestically pale, now treads the round.

* * * *

The rivers and the banks and hills around
With lowings and with dying bleats resound.
At length she strikes an universal blow;
To death at once whole herds of cattle go—
Sheep, oxen, horses, fall; and heaped on high
The diff'ring species in confusion lie.

Such is Virgil's account of one of these epizootics, as it raged among the Alps, probably not less than 2000 years since. We also learn from Plutarch that, in the days of Romulus, or about the time Rome was founded, 750 years before Christ, a great plague, after destroying the fruits of the earth and the cattle, swept off many of the people. And Livy, the great Roman historian, adds, "The consuls had the greater difficulty to raise their recruits, because the plague, which the year before had raged among horned cattle, was then broke out upon men." We find that Varro and others, the earliest writers on husbandry, are nearly silent on these affections. Columella, the author of one of the most valuable works on Roman agriculture, and who flourished shortly after the birth of Christ, views them as contagious diseases, and has handed down to us some instructions for their cure. It is not until the fourth century, when they are again mentioned by Vegetius, that we gather much information upon these pestiferous outbreaks. This early veterinary writer, after describing several varieties of the distemper or plague, goes on to observe:—"All these diseases are full of contagion, and if they seize an animal they pass immediately to all; and so they bring destruction sometimes either upon whole herds, or upon all those that are tame and broke for labour. Therefore the animals which have been once attacked must, with all diligence and care, be separated from the herd, and put apart by themselves, and sent to those places where no animal is pastured, lest, by their contagion, they endanger all the rest, and the negligence of the owner be imputed, as is usually done by fools, to the Divine displeasure." To appease divine wrath, and to stay the sad havocs made by these visitations, Cardinal Baronius informs us that, in the year 376, when the cattle died of the plague all over Europe, none escaped but such as were marked on the forehead with the sign of the cross, by which miracle many people were converted to Christianity. I must not, however, detain you by proceeding thus, step by step, through these early histories; but mention must be made of one of the most fatal kind, which appeared in the year 810, when not only every head of cattle was destroyed in the Emperor Charlemagne's army, who founded at this period the empire of Germany, called the Western Empire, but also throughout his dominions. The dark ages now succeeded, and for centuries all knowledge appears to have been

hidden in and confined to the monasteries; it would, therefore, be useless, on an occasion like the present, to attempt to trace out the history of epidemics during this interval. The fourteenth century saw those causes of ignorance dissipated, those bonds of mental darkness burst: in their place the arts, sciences, and literature arose, taking their stand in fair Italy's clime, thence to spread their blessings far and wide. In the sixteenth century we are informed of various outbreaks of malignant diseases among cattle; and Rammazini records that the Venetian states suffered greatly in 1514 and 1599, when "all beef and veal, and likewise milk, were forbidden by the senate to be eaten." He also says, that at Modena, in 1690, the season was cold and moist; and the distemper of that year attacked all the people who lived in the country, and spread itself indiscriminately amongst all kinds of animals, of which great numbers died. And the following year the sheep suffered so severely, that the breed was almost destroyed. In 1693, we learn that Hesse saw her herds carried off by "pulmonary phthisis."

Of late years the progress of these distempers has been regularly traced in Europe; and the one from which the cattle of Italy, Germany, France, Holland, and Great Britain, suffered in 1711-12, came from Hungary, being imported by some oxen into the neighbourhood of Padua. The infection seems to have been communicated by the saliva, for, say the historians, "when this is dropped on the grass, and sound animals immediately placed on the same pasture, they contract the disorder." The British islands were again visited by a great destruction of cattle in 1745; and on this occasion the infection is supposed to have been brought from Holland by some calves imported into the vicinity of London by a farmer for the purpose of crossing the breed; while others assert that the lucrative views of an English tanner, who bought a parcel of distempered hides in Zealand which were forbidden to be sold, was the cause. Be this as it may, the loss of agricultural property was immense, tens of thousands of our cattle falling a sacrifice in the course of a year or two. It is yet fresh in the memories of all, that, in 1839, a disease of an epizootic character broke out suddenly and simultaneously in the dairies of London and the marshy districts of Norfolk. This affection is too well known to need any particular description, but it is worthy of notice, as preceding a malady as

destructive to our cattle as the murrain of old, which at this moment rages almost unchecked by the power of medicine. I shall have occasion to revert to this for the purpose of combatting an opinion respecting it, which to me appears to be erroneous; and, therefore, in this place I will offer a few remarks on the supposed causes of these affections.

The partaking of bad provender or stagnant water, together with contagion, are viewed by many as the chief causes, while others look to a vitiated state of the atmosphere to account for them; but whether this consists of a mingling with it of mephitic vapours or deleterious gases, arising from either animal or vegetable decompositions, or from an excess of humidity or dryness affecting its electrical condition, is but conjecture; and perhaps it is wisely ordained that the true causes should be for ever hidden.

In the days of Homer the effects were attributed to the offended gods; but whether his account is or is not mythological of a vitiated air, we shall make no attempt to prove, as the antiquity of such opinion is otherwise shewn, being held in the time of Virgil. Ovid also viewed the atmosphere as the chief cause, and, when speaking of the destruction of the island of Ægina, he observes,

> "With deadly blasts the fatal south wind blew,
> Infected all the air, and poisoned as it flew."

Livy also, in his account of an outbreak in his time, imputes the pestilence to the air.

Pliny, who wrote a few years afterwards, proves to us that these opinions were not general, and that the quality of the food was considered dangerous, more especially the "rust of grass. The Holy Scriptures, says he, speak of it as an effect of God's wrath; and therefore it was that Numa Pompilius, the successor of Romulus, instituted festivals called the Rubigalia Festa, to avert its effects: these were celebrated in April, because this disease of the vegetables usually began in that month."—Animal decompositions, although not the sole causes of many destructive epidemics, cannot but be regarded as highly detrimental to life: hence, no doubt, the practice of burning or burying the dead, and it is much to be wished that the latter was altogether forbidden amid the residences of the living, and that the depositories provided for this

purpose at a distance from towns should be alone used. Numberless writers have shewn the calamities which clearly arise from this cause; and bearing on it, I may give you a quotation from Tusser, an epic poet and agricultural author of the time of Henry VIII, who has been sometimes called the British Varro:—

> "Whatever thing dieth, go bury or burn;
> For tainting of ground, or a worser ill turn,
> Such pestilent smell of a carrenly thing
> To cattle and people great peril may bring."

To conclude this division; whatever the combination of causes may be which produce these diseases, certain it is that very many of them assume an infectious nature, otherwise we could not account for animals separated and kept apart from diseased ones frequently and sometimes altogether escaping, while such are sure to become early victims that are allowed to pasture or live with the affected; besides, we can often succeed in producing the malady by inoculating healthy animals, thus shewing how closely it is allied to contagion or infection. The fact, however, of healthy animals contracting a disease when placed with affected ones of the same kind as they are suffering from, is the best proof of the infectious nature of a complaint; for an animal escaping an attack, when diseases of this character are raging in the locality in which it is placed, may arise from a variety of causes, as non-susceptibility, and also the possibility of the exciting agents never having been brought within its sphere of imbibition; for although each new victim to a destructive epidemic may be considered as adding new seeds or fresh energy to the malady by the exhalations arising from its body, we must not lose sight of the circumstance that very many infectious diseases assume an endemic type, whilst others which are spread over a vast extent of country are often observed to follow a particular direction. There are, however, those which appear to be guided by no determined rules, breaking out again and again in the same neighbourhood; but even here we may suppose, with some good reason, that the deleterious atmosphere floats, as it were, in nebula, and is driven hither and thither by the currents, sacrificing fresh victims which are placed in the course of its passage.

Although, then, as it has been tritely observed, "that one swallow does not make a summer," still we must not forget that one

positive or affirmative proof of the communication of disease from animal to animal should render us very cautious, and much influence the opinions we may give on so important a point. Judging, then, from what I have seen, and also from the facts related, I have too much reason to fear that the present epizootic affecting cattle is of a contagious nature: thus much for the causes of these maladies.

I intend now to offer a few brief remarks upon the existing disease, as my object is chiefly to direct your attention to that which I consider erroneous respecting it. It may, however, be first observed, that various terms have been employed to designate these affections, all of which have reference either to their supposed causes or their nature, as shewn by their effects on the animal frame, or frequently to the variety or kind of animal attacked. Thus we hear of the epidemic, the epizootic, and the zymotic disease, while, almost by common consent, we are contented to call the one I have alluded to pleuro-pneumonia; a name somewhat expressive of the ravages of the malady, but by no means the best which might have been selected. Many persons are of opinion that this affection is to be considered as a sequela of the eczematous epizootic which shewed itself among our flocks and herds in 1839; but it appears to me that these maladies are essentially different in their nature, in the parts selected for the attack, in duration, in consequences, and also in the kind of animal chosen as their victims; for, speaking generally, we may remark, in the one instance, the disease is ushered in suddenly and unexpectedly, selecting animals in apparent health, and running its course in a few days. It can also be produced by inoculation, and is recognised by the existence of vesicles containing a limpid fluid situated on the tongue and other parts of the body: and when shewing itself on a farm, affects indiscriminately both oxen, sheep, pigs, and poultry, without regard to their ages or the circumstances under which they are living. We also observe, that the patient is left apparently little the worse from the attack in the majority of instances, while, in a few exceptions to this, the unfavourable sequelæ which we notice are principally confined to the udder or the feet, producing, in the one case, inflammation of its secreting glands, and, in the other, destruction to the vascular and connecting parts between the sensible and horny portions of these

organs. Occasionally an extension of the disease takes place to deeper seated structures of the body, followed by the formation of abscesses in the cellular tissue, but in no cases do we see the parenchyma of the lungs affected with that peculiar morbid change which characterises the prevailing epizootic. How, then, can pleuro-pneumonia be viewed as a necessary consequence of this affection? Besides, have we not in it an insidious disease, attacking most important organs, proceeding gradually through its several stages, resisting almost every attempt at cure, and terminating only, in by far the larger majority of cases, with the life of the patient? But, independently of these differences, there are three other facts which clearly prove the non-identity of these maladies: First, both are found on the same premises at the same time, existing altogether independent of each other. Secondly, oxen and cows are most commonly the victims of pleuro-pneumonia, although not always. Thirdly, pleuro-pneumonia has swept off many animals that never were the subjects of an attack of eczema. Much might be said respecting the different views entertained on the precise character of the morbid change in the lungs; this, however, is a subject unfitted for the present occasion. And as I have dwelt on that which I considered an error regarding it, I shall, in conclusion, content myself by merely observing, that never did a disease demand from us stricter investigation, both as it regards its true nature, and also the means that ought to be adopted to stay its destructive effects.

In the preceding observations, with the brief history of epidemics that has been given, we hope that the great necessity which exists for the diseases of cattle to be well understood has been clearly shewn, and the importance of the subject received some elucidation: and as the advantages accruing to the community by an extended cultivation of this knowledge have been commented on in the earlier part of this address, we trust that we may now venture to offer a few concluding remarks to those of the profession who, in the present order of things, are chiefly looked to for effectually carrying out the good work which is begun. To you, students,—our rising hopes,—you are yet young in your attachments to scientific pursuits: let me impress on your minds that

energy, honest devotion to your studies, industry, and gentlemanly demeanour, are the sure means by which you will obtain both fame, honour, and fortune, in the exercise of your calling. Cultivate these, and your reward is certain. The advantages you possess over those that have gone before you are great: that you are persuaded of this, no other proof need be adduced, than for me to point to those splendid testimonials which you, in common with your elder brethren, have this day presented to your teachers, Professors Spooner and Morton. One of these is exclusively your act; the merit belongs entirely to you; and it shews, more forcibly than language can express, that you appreciate the value derivable from an extension of your instructions and the talents of your teachers. It is this conviction which you have not hesitated to record in imperishable marble.

May every success in life attend you! May your reputation increase proportionate to your exertions to assist in the onward progress of your profession!—and that you will honestly devote yourselves to it, no one can doubt, after the assurance which has this day been given.

And now, gentlemen, allow me to offer you my sincere thanks for the kind attention I have received during the delivery of this imperfect address: I know its faults are many. I may, however, congratulate you on coming events; for when we again assemble to celebrate another Anniversary, we shall be listening with eager delight to the eloquence of our friend Mr. Spooner, of Southampton, who has kindly promised to give the next Oration.

The dinner being now announced, a most excellent repast was partaken of, and the utmost cordiality and good feeling prevailed throughout the evening. After the removal of the cloth, and the national and a few other toasts had been given, the Chairman, Professor Spooner, presented to Mr. Morton, in the name and on the behalf of the subscribers to the *Veterinary Medical Transactions*, a very handsome Silver Coffee and Tea Service, with other plate. The principal piece bore the following inscription:—

THIS SERVICE OF PLATE IS
PRESENTED TO
W. J. T. MORTON, Esq.
LECTURER ON CHEMISTRY AND THERAPEUTICKS
IN THE ROYAL VETERINARY COLLEGE OF LONDON,
AS A TOKEN OF
REGARD AND ESTEEM,
AND AS A TESTIMONY OF THE TALENT AND ZEAL
WITH WHICH HE HAS PERFORMED THE
DUTIES OF EDITOR
OF THE
VETERINARY MEDICAL TRANSACTIONS,
BY THE SUBSCRIBERS TO THAT WORK.
1844.

Mr. Morton, after stating that the feelings he was then impressed with were of no ordinary kind, and so intense were they that he could not give utterance to them, assured all present that he felt most sincerely grateful for the very high honour they had been pleased that evening to confer upon him, by presenting to him so splendid a testimonial of their "regard and esteem;" and he trusted that while it conferred on him a good name, which he hoped he should be able to maintain untarnished, it would also act as an incentive to continued and increased endeavours satisfactorily to fulfil the duties of the station in which he had been placed. The feelings of pride that arose in his breast were checked by the consciousness of the little he had done, and how largely he had been rewarded by the exuberant liberality of his friends. But, said he, it may not be misplaced if this event is traced up to its cause, and he would promise not to detain them long.

When a mighty river is seen emptying itself into the mightier ocean, the mind reverts to its source, and reflects that once it was but a small brook struggling to force its waters over its pebbly bed; and so small may have been its beginning, that a stone could have turned it aside, or the foot of the mountain shepherd boy stopped it. Or, if we observed a stately oak spreading its majestic branches, and affording shelter to the beasts of the field and the fowls of the air, we remember that it was once but a tiny acorn which chanced to fall upon that spot, but, nurtured by the air and

soil and the dews of heaven, it germinated, and continued to grow till it attained its present size and value. Thus it is that things of note may frequently be traced to very small beginnings.

The Veterinary Medical Association had its origin in a series of events, recorded in the archives of veterinary medicine, which charity could wish were blotted out for ever. They constitute a dark era in our history, and one in which malignant feelings were allowed to obtain the mastery; nevertheless, no little good has followed the committal of the evil. Our beginnings, too, were feeble, while much opposition had to be contended with, and many obstacles were thrown in our way. The contest will be long remembered, yet the victory was certain almost from the onset, when two went forth—your President and myself—who had yielded but were not overcome; full of regret, but not in despair; and although possessing but little influence, we were strong in the justness of our cause. We met with the kindest reception from all members of the profession on whom we called; they were those who had taken cognizance of what had been going on, and, in common with ourselves, deplored the wreck that had been made. They promised their support, and fulfilled that promise. Backed by them, an application was made to the Governors of the Veterinary College to be permitted to form another medical society, in which care should be taken that the same errors should not again find place, by means being adopted to prevent a recurrence of similar scenes—scenes alike disgraceful to the profession, and derogatory to its best interests. Then was our triumph secure, and the Association has continued to acquire both strength and importance ever since.

Much of the estimation in which it is now held arose from the valuable assistance it obtained from Mr. Youatt, who was one of its earliest supporters, and who volunteered to communicate to the public our proceedings through *The Veterinarian*, for we were not ashamed of what we had done, or were about to do. Had a doubt remained on the mind of any one, it was now for ever dissipated. Thus we continued yearly adding to our numbers, and increasing in the estimation of those who had carefully scrutinized our acts, and who ultimately approved of them. At length it was said that the journal with which the Association was allied was becoming depreciated by the junction; and a feeling was abroad

that the public was being made too familiar with facts appertaining to veterinary medicine, thus injuring the profession. How correct this view is, or was, I will not take upon myself to say; but this I will assert, that there was not the remotest wish to continue a junction which was proving injurious to a long-established journal. About the same period, several letters were received from members of high standing in the profession, stating that an exclusive periodical—that is, one the sale of which was restricted to those who had graduated as veterinary surgeons—would be in consonance with the wishes of the body, and it was determined that such should be attempted. There were those among us who considered it impolitic, and others feared that sufficient matter would not be furnished to supply two journals. This, I confess, I never apprehended: perhaps I had better opportunities of forming an opinion, and the result has proved its correctness, for both have had enough, and to spare.

A great responsibility, however, was now thrown on the Council, and, in complying with the wishes expressed by so many, their first act was to appoint an editor to the new journal, an act which demanded much careful consideration. In an unfortunate moment, I fear, for veterinary science, but fortunate for himself, the humble individual who addresses you was selected. He felt his incompetency for the task, and his inefficiency perfectly to perform the duties thereof. It was an untrodden field to him; yet he was willing to try what he could do in it. He essayed, and his attempt was approved of. You may judge how gratified he felt; and it is somewhat satisfactory to him to know that the plan he at first laid down has not been departed from, except to restrain him a little in the wildness of his course; although, doubtlessly, it is capable of being much improved upon. As year has succeeded year, the subscribers to the work have increased; but never has the demand for it been such as to leave any surplus fund. Now, I do not hesitate to say that the amount of labour connected with the Journal has been very great; and had I foreseen all this, I should, perhaps, have declined the proffered honour: but I was not aware of it, and, having once put my hand to the plough, I did not feel inclined to withdraw it. Thus, then, it was that I became the Editor of the *Transactions of the Veterinary Medical Association*. How

my duties have been performed, it does not become me to say. I fear but imperfectly; and well do I know that others could have accomplished them much more effectually, as well as more advantageously to science.

And now, gentlemen, it is my duty to inform you that the two facts to which I have alluded; namely, the absence of any surplus fund, and the amount of labour called into requisition, without any hope of future recompence to him who may perform it, have induced the Council to propose that the *Transactions of the Veterinary Medical Association* shall, for the future, be an open journal, published quarterly, as before: not confined to the Report of the proceedings of the Association merely, but embracing those divisions of science which appertain to veterinary medicine, and courting the countenance and support of those who may deem the Journal worthy of it. The editorship also will no longer devolve on one person; but my colleagues, Messrs. Spooner and Simonds, have consented to co-operate with me in this department. We are associated in interests, and also in desire for the continued onward progress of veterinary science. We make no profession beyond this,—that it will ever be our earnest endeavour to manifest a christian spirit, to act impartially, and to avoid all personalities. These have been too often indulged in. They add nothing to a just cause, nay, often injure it; while they create dissensions in the body, and pamper to a low and malignant spirit.

Our circle of correspondents is now somewhat large. We have them in India, in America, in France, Germany, and Italy. With many veterinary societies on the continent we exchange Journals; and translations of articles of interest from them will continue to be given by Mr. Ernes, to whom we are already so much indebted. To these will be added reviews of works in or connected with veterinary science, extracts from scientific periodicals, and all matters affecting the interests of the veterinary profession.

We know that there are some who will withdraw their wonted support from us, because they object to the free communication of knowledge; but an exclusive Journal has been tried for three years, and it has not met with the anticipated encouragement: certainly not more than one-fourth of the profession have become subscribers to it; and thus has been demonstrated the feeling that

the *majority* are not in favour of exclusiveness. I, for one, confess I am not sorry for this; for who shall set limits to science, and say to it, "thus far shalt thou go, and no farther?" Indeed, it appears to me to be altogether opposed to the state of the public mind at the present day. We hear of no other division of science courting secresy: then why should veterinary science? Is it fearful to be brought before the light of truth, and to have its worth tested by public opinion? Then it has done that for which it has cause to be ashamed, or neglected to make those advances which it ought to have done; and I cannot for a moment think that it is likely to be screened by the flimsy mantle of secresy and exclusiveness.

And now, a word or two in behalf of the Association, if an institution can be said to need it in which exist both the elements and every prospect of continued success. I know it has been said that it is but a "pupil's concern." I hope this is not unkindly meant. But why should it be so? (allowing the validity of the assertion). It was not originally intended to be such; and every effort has been tried to render it otherwise. Solicitations have been made, and plans devised to bring about a more intimate and cordial union of the practitioner and the student; and ready and willing are we still to receive any proposition to accomplish so desirable an end.

It has been said, "the boy is father to the man;" and we know that "as the twig is bent so grows the tree." Of whom will the next generation of the profession consist? Why, of those who are now pupils; and to them we must look for the carrying on and perfecting of the reform and improvements now being made in our common art; to them at all times, then, ought the right hand of fellowship and support be held out.

Besides which, all wisdom is not concentrated in gray hairs. There is the forgetfulness as well as the apathy of senility; ay, and one thing more, there is the love of ease that creeps over the mind as we become old, and a disinclination to give up long-cherished views, although the advance of science may have rendered them no longer tenable: in other words, there is a great disinclination on our parts to go to school again.

How desirable, then, is it that such an Association as ours should

exist! It is as beneficial to the older as the younger member of the profession, and by it our common art or science—call it which you will—cannot fail to be benefitted.

I do not hesitate to say—and permission will be given to speak of myself—that as a teacher I have often there been taught, and have frequently found the weekly meetings to be productive of the greatest good to me, not only because they have been the means of refreshing the memory with records of the past, which might else have been effaced, but they have also stimulated to fresh exertions, and caused me to institute new inquiries, thus carrying me onwards in the pursuit of science. Besides all this, the mind of youth is naturally and laudably inquisitive, and questions are often propounded which, perchance, the sage may be unable to reply to; yet they are not always fruitless, since they awaken thought and consideration; and the mind is led to take a more correct view of its powers, and its limits too, and man is thus taught, that, after all his boasted knowledge, he knows but little and has yet much to learn.

It is no wonder, then, that I have devoted myself somewhat to the furtherance of its objects; and I deserve no thanks for it, since it may be said I have been actuated by selfish motives; but I hope not mercenary ones. I do, then, most earnestly hope, that I shall yet see the time when a greater cordiality and unity of purpose shall exist between the established practitioner and the student of veterinary medicine, and I firmly believe the Veterinary Medical Association might be made the most effectual means for bringing this about.

TUESDAY, NOVEMBER 19, 1844.

THE first business meeting for the session was held in the Theatre of the Royal Veterinary College this evening.

The Treasurer, Mr. J. B. SIMONDS, in the chair.

The Secretary having communicated explicitly and in full the resolutions of the Council of the Association holden on the 4th instant, and especially the following,

"Moved by Mr. W. Ernes, seconded by Mr. W. W. Barth, and carried unanimously, 'That for the future the *Transactions of the Veterinary Medical Association* be published quarterly as an open journal; and that the editorial department be conducted by Messrs. Spooner, Simonds, and Morton:'" they were unanimously confirmed by the members.

The rules and regulations of the Association having been read, the following officers were chosen for the session:—

President.—Professor SPOONER.

Vice-Presidents.

Mr. J. TURNER.	Mr. G. ROBB.
Mr. T. TURNER.	Mr. J. GREGSON.
Mr. W. FIELD.	Mr. A. CROOK.
Mr. W. ERNES.	Mr. W. C. CRABB.
Mr. J. NICE.	Mr. W. SHIRLEY.
Mr. E. BRABY.	Mr. J. BROAD.

Treasurer.—Mr. J. B. SIMONDS.

Secretary and Librarian.—Mr. W. J. T. MORTON.

ON THE ANATOMY OF THE FAUCES, AND THE PHYSIOLOGY OF THE VOICE AND DEGLUTITION.

A PRIZE THESIS.

By Mr. J. K. LORD.

THE larynx or organ of the voice is situated at the superior part of the trachea. It is composed of cartilages, muscles, ligaments, bloodvessels, and nerves, and internally it is lined by a mucous membrane.

The cartilages are five in number; namely, the thyroid, cricoid, two arytenoid, and the epiglottis.

The *Thyroid Cartilage* is so named from a supposition that it acts as a shield to the parts placed within it. In size it is by far the most considerable. It may be described as formed of two wing-like portions, of an irregular triangular figure, united anteriorly, and the inferior angle of each is known as the posterior cornua: the superior angles constitute the anterior cornua, which are attached to the edges of the alæ by a dense ligamentous substance. Anteriorly they form synovial articulations with the spur-like process of the os hyoides.

The *Cricoid Cartilage* is so called from its ring-like figure. It is posteriorly placed, and united to the first ring of the trachea. Inferiorly it is narrow and constricted; whence, gradually expanding, it presents, superiorly, a considerable extent of surface, which is divided in its centre by a prominent ridge. On the exterior of the superior surface is a protuberance, the anterior of which is indented by a glenoid cavity, for the reception of the posterior cornua of the thyroid cartilage, and on its anterior angle is an extensive surface, forming a synovial articulation with the arytenoid cartilages.

The *Arytenoid* (a pair) are named from their fanciful resemblance to the lip of a ewer or pitcher. They occupy the superoanterior part of the larynx. To aid description, they may be said to have three angles and three surfaces. The superior surface is broad and concave, for the reception of the arytenoid muscles, and terminates posteriorly in a rounded projection

(the posterior angle), which affords attachment to the crico-arytenoideus posticus muscle. The internal surface, smooth to articulate with its fellow, terminates in what may be described as the descending angle; to which is attached the thyro-arytenoidean ligament, or chorde vocales. The anterior angle slants in a backward direction, presenting a convex edge anteriorly, which will be found to contain numerous mucous glands, embedded in the substance of the cartilage.

The Epiglottis is so called from its laying on the base of the tongue. When not in use, it rests on the velum palati. It is attached to the thyroid cartilage by a highly elastic material. In shape it resembles a rose-leaf, consequently may be said to have a base and an apex. From its base or point of attachment, on either side, arise two processes of cartilage, which may be described as its *cornua* (by some they have been represented as separate cartilages): they are of an irregular figure, and take a divergent course, terminating beneath the descending angles of the arytenoid cartilages. The anterior surface of the leaf-like portion is smooth and slightly serrated at its edges, beautifully fitting, when depressed, the glottal opening. The posterior surface presents a curved form, ridged in its centre. Both these surfaces are thickly studded with small mucous glands, but more especially at the base and origin of the cornua.

These five cartilages are kept in their relative situations, and firmly held together, by the *ligaments*, which are numerous, and rather complicated.

Beginning with the joints, we shall find *six* capsular ligaments: two between the cricoid and thyroid cartilages; two between the cricoid and arytenoid cartilages; and two between the spur-like process of the os hyoides and anterior cornua of the thyroid cartilages, making six. These joints, being lined with synovial membrane, and lubricated by synovia, are evidently intended to move freely on each other. All the remainder, except two, although called ligaments, are of a highly elastic nature. The ligaments attaching the cricoid and arytenoid cartilages to each other are three in number—a pair (which are the true ligaments) and a single one. The pair, situated immediately beneath the surfaces of articulation, are short and strong, holding the two cartilages firmly to each other.

The third, a single one, fills up the space left between the posterior edges of the arytenoid and anterior edge of the cricoid.

The superior Crico-Arytenoidean Ligament.—Between the cricoid and thyroid cartilages is a ligament, situated on the inferior part of the larynx, and filling up the space left between the alæ and the thyroid, and also attached to a slight convexity on the antero-inferior edge of the cricoid.

The Crico-Thyroidean Ligament.—Between the thyroid cartilage and os hyoides is a broad expansion of elastic material, filling up that space left between the anterior angle of the thyroid and the hollow of the spur-like process.

The Thyro-Hyoidean Ligament, attaching the epiglottis to the thyroid cartilages, is a mass of the same elastic material.

The Thyro-Epiglottidean Ligament.—Running obliquely from the descending angle of the arytenoid cartilages to a depression in the anterior angle of the thyroid are two elastic bands or ligaments; these are generally described as the chorde vocales, or vocal chords: they are properly the *thyro-arytenoidean ligaments.*

As I have before stated, it must be evident, on the most superficial observation, that, from the nature of the articulations and the beautifully yielding material by which the cartilages are connected with each other, nature intended them to enjoy a freedom of motion; and the agents by which these motions are accomplished are the muscles of the larynx, consisting of seven pairs and a single muscle.

The first of those which may be considered as external muscles are:—

Crico-Arytenoidei postici.—A pair of muscles, filling up the superior expanded portion of the cricoid cartilage, and separated from each other by the median ridge, to both of which they are firmly attached; their fibres converge anteriorly, and become inserted into the posterior angles of the arytenoid cartilages.

Arytenoidei.—A pair of muscles, filling up the hollow on the superior surfaces of the arytenoid cartilages, being attached to each other, in the median line, by tendinous fibres.

Thyro-Hyoidei.—A pair of muscles, taking their origin from the infero-lateral part of the thyroid cartilage, increasing in width as they proceed forward, being inserted into the postero-inferior edge of the spur-like process of the ŏs hyoides.

Crico-Thyroidei.—A pair of muscles, occupying the groove before described, on the lateral portion of the cricoid cartilage; being also attached to its posterior edge, having their insertion into the posterior edges of the alæ of the thyroid.

The internal muscles, or those placed between the cartilages, are:—

Crico-Arytenoidei lateralis.—A pair of muscles situated between the posterior cornua of the thyroid and anterior part of the cricoid cartilages. They arise from the edge of the cricoid, and are inserted into the posterior angle of the arytenoid cartilage.

Thyro-Arytenoidei postici.—A pair of muscles situated anterior to the preceding ones, and placed between the alæ of the thyroid cartilage and the mucous membrane lining the cavity. They have generally been described as divisible into several portions, and these considered as distinct muscles; but as such divisions are completely at the discretion of the dissector, I have given them as being one pair of muscles, not in any way directly adherent to the thyroid cartilage, but firmly attached to that portion of the lining membrane over which they pass, being inserted into the extero-lateral part of the arytenoid cartilages: they arise from the crico-thyroidean ligament.

Thyro-Arytenoidei antici.—A pair of muscles still more anteriorly placed than the former, taking an oblique direction forward. They arise from the infero-anterior part of the thyroid cartilage, the former arising from the ligament. This difference of origin, I think, shews them to be distinct muscles: they are inserted into the superior edge of the arytenoid cartilages, their fibres being continuous with the arytenoidei muscles.

Hyo-Epiglottideus.—A single muscle, intersected and mixed up with a considerable quantity of elastic material, and situated at the back of the epiglottis. It arises from the base of the appendix on the superior part of the spur process of the os hyoides, being inserted into the ridge developed on the back of the cartilage by a tendon.

Actions of the Muscles.

A slight reference to these muscles will shew us that those intended for the dilatation of the glottis are far more numerous and powerful than those for closing it; that being considerably

aided by the highly elastic substance before described, which is placed between the arytenoid cartilages.

Crico-Arytenoideus.—Acts from the cricoid cartilage upon the arytenoid, the former being partially fixed, and the latter possessing a considerable extent of motion: it draws them upward and backward, and thus dilates the glottis.

Crico-Arytenoid lateralis is also a dilator of the glottis, but more so of the postero-internal edges of the arytenoid cartilages than of the lips of the glottis.

Crico-Thyroideus.—Draws back the thyroid upon the cricoid cartilage, in which it is aided by the crico-thyroidean ligament, and thus indirectly assists in dilating the glottis.

Thyro-Arytenoideus posticus.—Appears to me to possess a double action: when, by the preceding muscles, the glottis is dilated, a fixed point will be gained for either end of this muscle, which, consequently, will draw outward the membrane I have described it as passing over and being attached to; and thus the cavity of the larynx becomes enlarged. But when the preceding muscles are relaxed, then this muscle, acting upon the arytenoid cartilage, assists in constricting the glottal opening.

Thyro-Arytenoideus Anticus.—May also slightly assist in constricting the glottis; but its principal action I believe to be upon the ventricles, as a dilator to those cavities, acting upon them in the same manner as the preceding muscle does upon the mucous membrane.

Thyro-Hyoideus.—Possesses a double action; it either, when the os hyoides is fixed, as in deglutition, swings upon the larynx between its cornua, or, when the larynx is fixed, draws back the spur process upon the cartilage.

The Arytenoidei.—These muscles, I am inclined to think, are constrictors of the glottal opening, their fixed points being their median line; and, acting from that upon the posterior angles of the cartilages, they will approximate them, aided by the elastic material described as the single crico-thyroidean ligament.

The *Epiglottideus* draws back the epiglottis.

The mucous membrane lining the larynx is an extension of the same mucous membrane as that investing the mouth and pharynx, which, in fact, may be said to reach from the lips to the anus, through the medium of the pharynx, œsophagus, and alimentary

canal, being also continued through the larynx and trachea to the minutest ramifications of the bronchial tubes. Nature has wisely and beautifully adapted this membrane to the various parts it has to cover, according to the different functions each organ has to perform. In the one now under consideration (the larynx) it is highly vascular, and plentifully studded with mucous follicles, the secretion from which constantly bedews the membrane; added to this, it is well supplied with nerves rendering it acutely sensible to all tactile impressions.

After investing the epiglottis, it is reflected across from that cartilage to the arytenoid, forming what has been described as the aryteno-epiglottidean ligament, but which is simply a double reflexion of mucous membrane. At the posterior part also of the epiglottis is a loose reflexion of this membrane, covering the hyo-epiglottidean muscle, and continuous with the base of the tongue, described as the frænum epiglottideus.

At the anterior part of the larynx, between the aryteno thyroidean ligaments (or vocal cords) and alæ of the thyroid cartilage, and just at the base of the epiglottis are two pouch-like cavities, described as the ventricles of the larynx: they are formed by an inflection of the mucous membrane, and are of considerable size, reaching as high up as the superior edge of the thyroid cartilage. Their use I shall endeavour to point out when treating on the physiology of the voice.

The larynx is supplied with blood principally from the laryngeal artery, a branch of the thyroideal: its veins empty themselves into the submaxillary vein.

The nerves principally distributed to the larynx are the superior laryngeal, and inferior or recurrent laryngeal, both branches from the eighth pair. The superior nerve crosses over the muscles of the pharynx, to reach and enter the foramen before described on the edge of the thyroid cartilage, and is more especially distributed to the lining mucous membrane; while the inferior or recurrent, being a motor nerve, supplies the muscles.

The TRACHEA may be said to take its rise from the posterior edge of the cricoid cartilage, and from thence extends into the chest, where, on reaching the lungs, it divides into the right and left bronchi.

Situation.—At its origin, it is situated immediately under the

first and second cervical vertebræ; but in its descent it slightly inclines to the left side, entering the chest between the two first ribs. It is principally composed of a number of cartilaginous rings, varying in number in accordance with the length of the neck, being disconnected at their posterior parts, where they overlap each other. They are connected together by a highly elastic material, which enables them freely to contract, dilate, or become separated from each other, and thus to elongate the trachea when the animal stretches out the head. It is lined throughout by a mucous membrane, a continuation of that lining the larynx, which is very vascular and sensitive, and thickly studded with small mucous crypts, which constantly bedew it with a secretion. Between this mucous coat and the elastic material connecting the rings is a layer of muscular fibre, more markedly developed at the posterior part, where it is stretched across the overlapping edges of the cartilages, but yet clearly traceable over the whole of the interior surface of the trachea, and probably extending even to the air-cells.

There are two opinions as to the action of this muscle;—one, that it dilates the trachea—the other, that it diminishes it. I incline to the former view, although I would scarcely go so far as to say it enlarges the caliber of the tube: yet it appears to me, that, if you render an ellipsis a circle, you give a much greater facility for the transmission of an elastic medium, and such must be the action of this muscle.

Physiology of the Voice.

On entering upon the consideration of the physiology of the voice, I feel conscious of my utter inability to render plain so important and interesting a subject; it being one that has occupied the time and talents of the first comparative anatomists and physiologists, both of ancient and modern times, in endeavouring to ascertain its nature and to develop the machinery in operation for its production; and each varies more or less in his opinions, as to the manner in which the wheels of the machine (if I may be allowed the simile) are operating to produce the sound we call voice. It will therefore be conceded that I, who in the field of science hold about the same relative position that the lowest

organized zoophite does in the mighty chain of nature, can add but little in the way of elucidation to what has been already written on the subject; nevertheless, by extracting from authors that which may be applicable to the horse, and adding what little of my own I have gleaned from observation, I trust I shall be enabled to render tolerably perspicuous the mode by which the air becomes vocalized, so as to constitute the voice, and to describe the active agents concerned in its production.

The voice of the horse is that sound produced at the will of the animal through the medium of the air in its passage to and from the lungs, in common parlance *neighing*. This is chiefly effected by the larynx, which may truly be called the organ of voice, although it is regulated in intensity and variously modulated in tone by other parts, which I shall notice as I proceed. Very eminent physiologists have, as I before remarked, entertained contrary opinions as to its production. Some have described the larynx as being analogous to a *reed* instrument, while others have likened it to a horn or trumpet; and a third party steps in and says, it is neither the one nor the other of these, but it is a *stringed* instrument. The limits of this thesis, however, preclude the possibility of my entering upon a consideration of these differences; neither do I believe it is of the slightest practical importance; for, with all our philosophy and sage deductions, who, I would ask, could tell by any act of reasoning, simply from investigating the larynx of a *sheep*, an *ass*, or a *horse*, that the one would *bleat*, the other *bray*, and the third *neigh*: or, in a word, could they, from an inspection of the dead animal, form any idea of the sound it could produce whilst it lived? We hear the horse produce the sound we call neighing, and experience tells us that it is expressive sometimes of pain, at others of pleasure; it is also indicative of anger, and it is the call by which the mother attracts her offspring. Having ascertained this, we naturally turn to an investigation of the parts or organ producing it, and we find this to be accomplished by the larynx. Practically I believe this is all we ever need know; yet, in a physiological description, it will be requisite that I should go more into detail, and endeavour to shew the use of the different parts of this organ. In order to accomplish this, it will be requisite to take a brief survey of the various arrangements we meet with in the different species of mammalia. Now the horse and the ass are

most remarkable as breathing exclusively through their nostrils: not so the ruminant nor pig tribe; they respire but partially through the nostrils, all excited or increased respiratory action being accomplished by the mouth. The sound we call the voice is mainly the result of the rapid vibration of the aryteno-thyroidean ligaments, or *vocal cords*, as the air passes over them in its transit to and from the lungs. During tranquil respiration no sound is produced, for then the larynx slowly and equably adapts itself to the current of air traversing it; but at the will of the animal he dilates his nostrils; and takes a deep and prolonged inspiration; the dilator muscles contract, enlarging the glottal opening to its greatest extent, and by that means rendering tense the vocal cords; the ventricles at the same time become filled with air, and, if I may use the term, the vocal cords are isolated, and allowed to vibrate freely and rapidly as the air passes over them. But, during the act of expiration for the production of voice, I do not think the ventricles are called at all, or if at all but little, into action; the abdominal muscles forcibly contracting, aided by the natural resiliency of the lungs, expel the air with considerable rapidity. The dilator muscles, as in inspiration, contract and dilate the glottis; but this dilatation is further increased by the volume of air in its rapid passage through the larynx. The air abuts against, or rather is impeded by, the posterior projecting edges of the vocal cords and arytenoid cartilages, and thus renders these cords tense and free to vibrate.

I do not think we require a clearer proof that the dilator muscles are actively called into requisition for the purpose of rendering tense these cords and enlarging the glottis to produce sound, than the experiment of Majendie, who divided the recurrent nerves, which, as I have stated in the anatomy, principally supply these muscles, and the consequence was a total loss of voice.

I have stated that the ventricles are principally, if not solely, called into use during inspiration; and, in order to support this opinion, we must take a short survey of some of the other mammalia, and see if analogical reasoning will bear our position out.

Suppose we could find an animal whose voice was only produced during expiration. If my position is a valid one, the ventricles would then be of no service; and as Nature gives nothing in vain, we should expect to find them absent. Now turn we to the rumi-

nant, an animal, as I have previously asserted, breathing principally during excitement through the mouth, and the production of whose voice is solely expiratory: What do we find here? A large and capacious larynx, evidently capable of considerable alteration in size and capacity; the muscles well developed, the epiglottis comparatively short and obtuse, the glottal opening consequently more rounded than in the horse, the vocal cords shorter and thicker, but *no* ventricles, Nature not having placed them where they would have been superfluous. The bullock, when it, in common parlance, bellows, stretches out the head and elevates the nose, bringing, as nearly as it possibly can, the mouth, larynx, and trachea, in a straight line: the air is then forcibly expelled through these parts, which may be likened to a continuous tube, the sound being produced in an analogous manner to blowing through a *horn* or *trumpet* by the vibration and resonance of the air against the sides of the tube. Again, in the feline tribe, we find an absence of the ventricles; animals, also, whose voice is an expiratory function.

But is there no other animal capable of producing long and continued sound, both during inspiration and expiration, beside the horse and ass? Few are there, I believe, who are not fully aware of the vast capability possessed by the pig tribe in the production of a most intense, long, and continuous sound: indeed, it has become a saying amounting to a proverb. In this animal we find the larynx admirably and beautifully adapted for the accomplishment of this: the cartilages are enabled, by the interposition of a quantity of highly elastic material, to yield readily to the contraction of the muscles on the force of the air passing through the larynx: the muscles are well developed and powerful; the vocal cords large and most obliquely placed, and that at the posterior part of the organ; the ventricles holding the same relative position as in other animals with regard to the vocal cords, but situated with them at the posterior part of the larynx: they are of a considerable size, and so placed as almost to preclude the possibility of air entering them, except during inspiration.

Now these are all incontrovertible facts; and is it not, I ask, fair and reasonable to conclude that the ventricles are mainly, if not solely, called into requisition during inspiration, when in the horse, ass, mule, and pig, animals which our daily observation must convince us produce their voice both during inspiration and

expiration; and their equally certain absence in the ruminantia, whose voice is an expiratory act? It may possibly be started as an objection, that they are in some way connected with nasal respiration, and hence we do not meet with them in the ruminant. But, in refutation of such an opinion, I have only to refer to the pig, an animal breathing principally through the mouth, whose nostrils are particularly small, and quite inadequate alone to the performance of respiration, but whose ventricles are peculiarly well developed.

The voice is variously altered in tone and regulated as to intensity by the other parts of the respiratory organs through which the air passes. In the first place, the bronchial tubes and trachea have, I am inclined to believe, much to do with the tone of the voice. The latter, I have shewn in its anatomy, is capable of readily and easily altering its caliber, by which means it regulates the current of air, and adapts it to the degree of dilatation which the larynx may at that time be in. Again, it can be lengthened and shortened at the volition of the animal, and by that means, in some measure, its tone is governed. Anterior to the larynx, the sound or voice is considerably increased in tone as it passes through the fauces and nostrils. It has been contended by some writers, that the fluttering of the velum palati, and the eustachian cavities are the principal producers of the voice; but, I think, most erroneously, since, during respiration, the velum palati is held firmly down in its position, both mechanically and vitally. Again, how such a thick glandular mass is to flutter like a flag in the breeze, even supposing it was free, requires more credence than I can tacitly yield. The eustachian pouches are also, in my humble opinion, equally unconcerned. From the valvular form of their inlet, air could scarcely enter them; and as to their vibrating, if it can be shewn that a bladder, inflated and put into a box that it exactly fits, is capable of rapid vibrations, then it will be easy to conceive a similar process to take place in these pouches, for such, figuratively, is their position. In taking a general survey of the vertebrata, we shall find, in every instance where the power of vocalizing the air in its passage to and from the lungs is present, that co-existent with that power is the development of a larynx, widely differing, I grant, in structure and arrangement in the lower classes of the vertebrata, yet still typical of, and closely

allied, in the principles of its construction, to the higher orders of mammalia. If, then, it be true that the velum palati and eustachian pouches are essential to the production of voice, analogical induction would lead us to infer the universality of their presence also. Now, if we turn to the bird tribe, some species of which are enabled to produce and modulate the voice to a degree of richness and variety far surpassing any of the mammalia, we shall find the larynx placed, generally, at the inferior part of the trachea, close to the sternum, but not a trace or vestige of either the velum palati or eustachian pouches to exist. The tone of the voice also differs much in the male and female; castration also makes a material alteration in its tone. Why it should so differ, it is beyond my power to assign a reason: possibly it may arise from the vast alteration the animal undergoes consequent upon the operation. In the entire animal the parts are more fully developed, the voice of deeper tone, and the sonorous vibrations much more intense.

The sinuses and nasal cavities I am inclined to view as the great and most important assistants in increasing and keeping up the vibrations after the production of sound in the larynx of the young animal, where the voice is weak and shrill, although this is in some measure dependent on the small size of the, as yet, imperfectly developed larynx and trachea; but still more so upon the small and imperfectly formed sinuses, for as these quickly become enlarged and perfectly ossified, from the peculiar mode of growth in flat bones (beautifully illustrated in the head, viz. from the centre to the circumference), so does the voice increase in power and depth of tone; and it requires no great stretch of the imagination to render this in accordance with our ideas of sound. There are but few who are not aware of the fact, that our voice sounds considerably louder when uttered in a vaulted cavern than in open space. Again, if we put a tuning-fork into a state of vibration, and in that state hold it under the mouth of an inverted bottle, its sound will be materially augmented. These phenomena are to be accounted for on the principle of a well known law in dynamics, viz., that all bodies in a state of motion are capable of imparting that motion to other bodies with which they come in contact. The impulse given by the sounding body in the former case, the air in the latter—the tuning-fork—to the

quiescent particles of the elastic medium in immediate contact with them is propagated from particle to particle in all directions; hence sound must of necessity be materially weakened in intensity by being diffused over an extensive sphere of particles; and the converse obtains: it is vastly increased by being concentrated in a small space, and reflected, as it were, from side to side. Just such a part as this do the large and extensive frontal and maxillary sinuses play: the vibratory impulse is communicated to the confined air contained in them, and, if I may use the comparison, echoed and reverberated from side to side, increasing and giving depth of tone to the voice. Thus does nature beautifully turn all to good account: in the first place, by these sinuses rendering the skull light and less liable to the effects of concussion, and making them, secondarily, useful adjuncts in the production of voice. If we now advert to the nasal cavities, here again we shall find other wise provisions for increasing and keeping up the vibrations. At the anterior part of the inferior turbinated bone is a small elastic ligament, which becomes attached to the cartilage forming the alæ of the false nostril, similar in construction to the vocal ligaments: this I am inclined to look upon as a material assistant in keeping up vibration, and principally so during inspiration, giving the first impulse to sonorous undulations: the fluttering of the nostrils also aid in giving intensity to the sound.

Having now dwelt as long upon this subject as the limits of an essay will permit, and having, I trust, rendered the leading principles sufficiently plain, so as to be readily understood, I proceed to a consideration of the remaining portions of my thesis.

The Œsophagus.

This tube commences by a funnel-like opening immediately over the cricoid cartilage, passes for a short distance over the superior portion of the trachea, and then inclines to the left side, which it reaches a short way down the neck, and continues so situated to enter the chest with the trachea, between the two first ribs, passing on the right side of the aorta, through the inferior mediastinum, to reach the stomach.

Externally the œsophagus is covered by a rather dense cellular

membrane, although but loosely attaching it to the contiguous muscles, &c., so that it enjoys perfect independent action.

The muscular coat is composed of two orders of muscular fibres; an external or longitudinal, and an internal or spiral. By the former it is shortened, and possibly slightly dilated; by the latter the peculiar vermicular motion is effected for the transmission of food into the stomach. It is lined with a continuation of the mucous membrane covering the mouth, fauces, &c.; but much altered in character, so much so as generally to be described as a cuticular coat. It is so loosely attached to the muscular coat as to be easily drawn out if a section be made of the œsophagus; and it evidently possesses—as does the tube itself—a perfectly free and independent action, and, in the relaxed state of the tube, is thrown into a number of longitudinal plicæ or folds. I am rather inclined to think that this mucous or cuticular coat has a certain amount of inherent contractility. I would just passingly remark the peculiar arrangement of the muscular fibres of this tube at its cardiac extremity, where it joins the stomach: they there form a kind of double loop, so that, on contracting, they constitute a perfect sphincter. I shall be able to point out a somewhat analogous arrangement when I speak of the anatomy of the fauces.

The Fauces.

The fauces may be said to be that space or cavity intervening between the posterior part of the tongue and entrance to the larynx and pharynx. It is a sort of vestibule, or hall, communicating with which there are several openings, and much importance seems to have been attached to the number of these openings; why or for what reason I know not. They may be said to be six; two with the eustachian tubes, one with the nostrils, one for the larynx, one for the pharynx, and one for the mouth. The boundaries of the fauces are, super-anteriorly, the nasal opening; infero-anteriorly, the base of the tongue, and velum palati; and postero-superiorly, the guttural pouches, larynx, and pharynx. It is lined throughout with mucous membrane, continuous with the various openings into it.

The guttural pouches are two circumscribed mucous sacs, situ-

ated above the pharynx, extending as high up as the base of the ear, beneath the parotid gland, and, as before described, bounding the fauces postero-superiorly. To give an idea of their size, I should say they would each contain, at least, a pint of fluid. They open into the fauces by the same openings as the eustachian tubes, the cartilaginous terminations of which tubes form a complete valvular orifice. The use of these sacs appears to me to be that of giving great freedom of motion to the pharynx, in order that it may accommodate itself to the size of the pellet deglutated; and in this opinion I think I am, in some measure, borne out by a reference to the ruminant, an animal which not only swallows its food in pellets of considerable size, but returns the food for a second mastication; and we cannot suppose these are invariably of the same size. Now, in this class of animals we find these pouches much more developed than in the horse. Had the pharynx been bounded by a solid unyielding structure, instead of these flaccid sacs, there would have been a much greater liability to choaking.

The velum palati, or soft palate, is a dense ligamentous structure attached to the arch of the palate bones, terminating in a free edge, which rests during respiration upon the base of the tongue. It is covered on its antero-inferior surface, or that surface continuous with the bony palate, by a large gland, which appears to me in every respect to resemble a salivary gland. Its ducts empty themselves by numerous openings: its posterior surface is covered by a mucous membrane.

The velum palati has but one pair of muscles, which directly act upon it,—the tensor palati, or, more properly, the levator palati. Most writers on this subject describe a single muscle also; but it is an error.

This pair of muscles (the tensor palati) arise from the styloid process of the petrous portion of the temporal bone, runs along the edge of the eustachian tube, becomes tendinous as it reaches the pterygoid bone, round which it forms a remarkable pulley-like arrangement, then turns back, and is inserted by a tendinous expansion into the velum palati, near its free edge. Having as briefly as possible given an outline of the fauces and its boundaries, I now come to the

Pharynx.

The Pharynx may be best described as a musculo-membranous bag, situated between the larynx and guttural pouches, antero-inferiorly opening into the fauces, postero-superiorly continuous with the esophagus.

Hitherto the pharynx has generally been described as consisting of three pairs of constrictor muscles and three pairs of dilator muscles; but I think I shall be able to shew that such an arrangement is not correct. The three pairs of dilator muscles usually given are the hyo-pharyngeus, stylo-pharyngeus, and palato-pharyngeus; but, on a careful dissection, it will be found that the arrangement and action of these muscles are widely different from that which has generally been taught. In order to render the subject intelligible, and to facilitate description, I have given a rough diagram; but ere I refer to it, perhaps I had better give the origin and insertion of the different muscles belonging especially to the pharynx.

Dilators, two pairs. The *Hyo-Pharingeus* arises from about the middle of the internal side of the greater cornua of the os hyoides, takes a slanting direction downward and forward, and is inserted into the superior edge of the mouth of the pharynx.

The *Palato-Pharyngeus* (improperly named) is a mass of disgregated muscular fibres, spread over the anterior part of the membrane lining the fauces. Some of the fibres are slightly attached to the free edge of the velum palati; the remaining portion of the muscle blends with its fellow of the opposite side: there is also a small portion extending backward beneath the anterior constrictor muscle of the pharynx.

The Constrictor Muscles. Of these there are three pairs; and those more particularly contribute to form the pharynx:—

The *Constrictor Anticus* arises from the spur-like process of the os hyoides, covering its articulation with the thyroid cartilage. The muscle then unites with its fellow of the opposite side by a ligamentous line.

The *Constrictor Medius* arises from the alæ of the thyroid cartilage, and this muscle unites with its fellow as the preceding.

The *Constrictor Posticus* arises from the edge and lateral protuberance of the cricoid cartilage, and, as the former muscles,

unites with its fellow of the opposite side, likewise blending its fibres with the superior portion of the esophagus.

I shall enter upon the action of these muscles more particularly when I come to the physiology of deglutition.

There are yet two pairs of muscles left to speak of; and these I do not believe have any thing to do with either the contraction or dilatation of the pharynx: so that, truly, there are only five pairs of muscles directly acting upon, or strictly belonging to, the pharynx.

The two pairs of muscles I am about to describe are generally known as the stylo-pharyngeus, which I propose calling the CONSTRICTOR FAUCES ANTICUS; and the pterygo-pharyngeus, generally described as a part of the palato-pharyngeus; this I propose to call the CONSTRICTOR FAUCES POSTICUS.

The *Stylo Pharingeus*, or *Constrictor Fauces Anticus*, arises from the styloid process of the petrous temporal bone; runs along the edge of the eustachian tube, to which it is attached; passes over the anterior part of the fauces, and there unites with its fellow of the opposite side. (*See woodcut, fig.* 9.)

The *Pterygo Pharyngeus*, or *Constrictor Fauces posticus*, arises from the arch or hollow of the pterygoid bone, slants obliquely backwards over the posterior part of the fauces, and also unites with its fellow of the opposite side. (*See woodcut, fig.* 8.)

The action of these I shall also be better able to illustrate when considering the physiology of deglutition.

The pharynx receives its nerves by branches given off from the pneumo-gastric, glosso-pharyngeus, and sympathetic.

Its arteries are principally derived from the sub-maxillary artery, and its veins empty themselves into the sub-maxillary veins.

Having now hastily glanced at the anatomy of the pharynx and fauces, I will proceed to the consideration of the physiology of deglutition. The subjoined sketch, however, may serve to elucidate that which might otherwise appear complicated.

Crico-Thyroidei.—A pair of muscles, occupying the groove before described, on the lateral portion of the cricoid cartilage; being also attached to its posterior edge, having their insertion into the posterior edges of the alæ of the thyroid.

The internal muscles, or those placed between the cartilages, are:—

Crico-Arytenoidei lateralis.—A pair of muscles situated between the posterior cornua of the thyroid and anterior part of the cricoid cartilages. They arise from the edge of the cricoid, and are inserted into the posterior angle of the arytenoid cartilage.

Thyro-Arytenoidei postici.—A pair of muscles situated anterior to the preceding ones, and placed between the alæ of the thyroid cartilage and the mucous membrane lining the cavity. They have generally been described as divisible into several portions, and these considered as distinct muscles; but as such divisions are completely at the discretion of the dissector, I have given them as being one pair of muscles, not in any way directly adherent to the thyroid cartilage, but firmly attached to that portion of the lining membrane over which they pass, being inserted into the extero-lateral part of the arytenoid cartilages: they arise from the crico-thyroidean ligament.

Thyro-Arytenoidei antici.—A pair of muscles still more anteriorly placed than the former, taking an oblique direction forward. They arise from the infero-anterior part of the thyroid cartilage, the former arising from the ligament. This difference of origin, I think, shews them to be distinct muscles: they are inserted into the superior edge of the arytenoid cartilages, their fibres being continuous with the arytenoidei muscles.

Hyo-Epiglottideus.—A single muscle, intersected and mixed up with a considerable quantity of elastic material, and situated at the back of the epiglottis. It arises from the base of the appendix on the superior part of the spur process of the os hyoides, being inserted into the ridge developed on the back of the cartilage by a tendon.

Actions of the Muscles.

A slight reference to these muscles will shew us that those intended for the dilatation of the glottis are far more numerous and powerful than those for closing it; that being considerably

aided by the highly elastic substance before described, which is placed between the arytenoid cartilages.

Crico-Arytenoideus.—Acts from the cricoid cartilage upon the arytenoid, the former being partially fixed, and the latter possessing a considerable extent of motion: it draws them upward and backward, and thus dilates the glottis.

Crico-Arytenoid lateralis is also a dilator of the glottis, but more so of the postero-internal edges of the arytenoid cartilages than of the lips of the glottis.

Crico-Thyroideus.—Draws back the thyroid upon the cricoid cartilage, in which it is aided by the crico-thyroidean ligament, and thus indirectly assists in dilating the glottis.

Thyro-Arytenoideus posticus.—Appears to me to possess a double action: when, by the preceding muscles, the glottis is dilated, a fixed point will be gained for either end of this muscle, which, consequently, will draw outward the membrane I have described it as passing over and being attached to; and thus the cavity of the larynx becomes enlarged. But when the preceding muscles are relaxed, then this muscle, acting upon the arytenoid cartilage, assists in constricting the glottal opening.

Thyro-Arytenoideus Anticus.—May also slightly assist in constricting the glottis; but its principal action I believe to be upon the ventricles, as a dilator to those cavities, acting upon them in the same manner as the preceding muscle does upon the mucous membrane.

Thyro-Hyoideus.—Possesses a double action; it either, when the os hyoides is fixed, as in deglutition, swings upon the larynx between its cornua, or, when the larynx is fixed, draws back the spur process upon the cartilage.

The Arytenoidei.—These muscles, I am inclined to think, are constrictors of the glottal opening, their fixed points being their median line; and, acting from that upon the posterior angles of the cartilages, they will approximate them, aided by the elastic material described as the single crico-thyroidean ligament.

The *Epiglottideus* draws back the epiglottis.

The mucous membrane lining the larynx is an extension of the same mucous membrane as that investing the mouth and pharynx, which, in fact, may be said to reach from the lips to the anus, through the medium of the pharynx, œsophagus, and alimentary

the pellet, the larynx is raised or swung up between the os hyoides, and also drawn slightly forward, the tongue at the same time being drawn slightly backward: the epiglottis is now shut down upon the glottal opening (which closure I am inclined to think is accomplished partly by the mutual approach of the larynx towards the tongue and the tongue towards the larynx, and partly by the mechanical pressure of the food against the epiglottis). We have now to see how the pellet is prevented from entering the nostrils, there being a free communication between the nose and the fauces; and here again I must refer you to the sketch. *Fig.* 8 and 9 are the two muscles I have proposed to call the anterior and posterior constrictors of the fauces, and whose actions I have said I should be able to demonstrate. Their use must now be obvious. When the pellet has reached the bottom of this inclined plane, these muscles, contracting, approximate the sides of the fauces, which their peculiar crucial arrangement, as seen in the sketch, admirably adapts them for effecting: in fact, the action of these muscles is precisely analogous to the peculiar species of sphincter muscle found at the cardiac extremity of the stomach.

It would be scarcely possible to conceive that these muscles would completely close the orifice as an orbicular muscle would; but this is provided for and accomplished by the elevation of the velum plati, or rather its free edge, which is raised by the contraction of the tensor palati muscles, the singular arrangement of which has already been pointed out; so that by the contraction of these muscles, aided by the velum palati, the pellet of food is effectually and beautifully prevented from entering the nostrils. The only passage now left for this pellet of food is that of the pharynx, the entrance of which is held open by two pairs of muscles already described. *(See sketch, fig.* 6, 7.*)* There it is immediately grasped by the anterior constrictor *(fig.* 1), which muscle by the slightest tactile impression is instantly stimulated to powerful contraction, as indeed are all the muscles strictly belonging to the fauces and pharynx. We cannot will that we would swallow; there must be a something of sufficient substance to stimulate or touch these muscles, or the act of deglutition could not be excited. This brings me to the third action, which must obviously be a purely involuntary one, viz. that act by which the food is conveyed through the pharynx into the esophagus. As soon as the pellet of food has

been grasped by the anterior constrictor muscles, the larynx is drawn downward and backward by the sterno-thyroidei and sterno-hyoidei muscles, so that the constrictor muscles by that means gain a fixed point to act from; the pellet being gradually propelled from the anterior to the posterior part of the pharynx by the alternate contractions of these constrictor muscles. Having reached the posterior part of the pharynx, it is pushed into, or rather it is seized by, the funnel-like commencement of the œsophagus, which seizure is the beginning of the fourth action, viz. the propulsion of the pellet of food through the œsophagus into the stomach. This is admirably accomplished by the peculiar vermicular motion of this tube, which motion it is well adapted for effecting from the remarkable arrangement of its muscular fibres, the two orders of which, as well as their relative situations with regard to each other, I have endeavoured to point out when speaking of its anatomy. Gravity has nothing whatever to do with the transmission of food through it, as by far the greater quantity is swallowed contrary to gravity when an animal is grazing. These vermicular contractions can only be excited by direct tactile impressions, as the muscles of the pharynx and fauces are excited. Hence it will be seen how essential it is that the œsophagus should possess a perfectly independent action.

The act of drinking, or the swallowing of fluids, is accomplished precisely in the same way as that of food or any other solid material after it has reached the summit of the tongue or beginning of the inclined plane; the difference being in the way by which the fluid is brought into the mouth. The animal applies its lips to the surface, say, for instance, of a pond of water; the mouth is then, at the will of the animal, exhausted, or rather a partial vacuum is formed, when the pressure of the atmosphere upon the surface of the fluid forces it up into the mouth, and, having forced it up to the summit of the tongue, the same actions take place which I have endeavoured to describe when speaking of the deglutition of food.

It would have afforded me much pleasure to have gone more minutely than I have done into a subject so replete with interest; but I find I have already exceeded the usual limits of an essay. I trust, however, I have rendered the subject sufficiently plain to

be easily understood. My aim has been to divest it as much as I consistently could of all technicalities, thus rendering it of greater practical utility; yet it was not possible to avoid the introduction of anatomical terms.

TUESDAY, NOVEMBER 26, 1844.

The PRESIDENT, Professor Spooner, took the Chair, and acknowledged his re-election to office.

The following were elected members:—

Mr. N. F. Clarkson, senior veterinary surgeon Hon. E. I. Co.'s Service; Mr. J. Aked, V.S., Bury; and Messrs. L. E. T. Vicary, J. Mannington, C. Hawes, W. Burrowes, J. Rose, R. Skelton, W. Chapman, H. Fishwick, W. Kent, J. Sargisson, W. Phillips, J. Shepperson, and T. Bass, students.

The following works were presented to the Library:—

By the Patron—"Gilchrist on the History and Treatment of the Diseases of the Elephant."

By the Treasurer—"Burdon's Farrier," 1837.

By Mr. W. Field—"Posthumous Extracts from the Veterinary Records of the late John Field."

By Mr. J. J. G. Wilkinson (translated by him)—Vol. II. "Swenderborg's Animal Kingdom."

By M. U. Leblanc—"La Clinique Vétérinaire."

By Mr. G. Gamgee—"Due Righe sopra un Cervello ossificato in un Animale sano, dal dottore Luigi Patellani."

By Mr. J. S. Gamgee—A translation of the above pamphlet. [This will appear in a subsequent number of the *Record and Transactions*.]

Mr. Ernes stated that he was commissioned by the Veterinary Society of Brussels to request that an exchange of Journals might

take place; and, as a proof of their sincerity, they had forwarded by him the volume published by them during the last year.

On the table were placed many of the morbid specimens forwarded during the vacation, with samples of drugs received from India. Also a cast of a horse's foot from which the hoof had been torn off, hereafter to be particularized; and a large cystic calculus.

The Secretary.—The samples of drugs before you have been presented to the Association by Mr. T. Aston, of the Hon. E. I. Co.'s Service, who received them from Mr. Haggar, V.S., Madras Presidency. They consist of aloes, native sulphate of copper, and betel-nuts.

Respecting the aloes, the appearance presented is that of a mixture of the Cape extract, as met with in the shops, and the Mocha. It exists in small masses, the largest not exceeding a hen's egg in size. The fracture of some pieces is clean and resinous, of others less so; but the odour of these is more aromatic. One or two portions strongly resemble the socotrine extract. It might, therefore, be inferred that this sample is not the produce of an individual plant, but of many plants, the larger quantity being made from the aloë spicata; or, if obtained from one plant, the differences arise from preparation. The dose, according to Mr. Aston, is about four drachms; who informs me that the extract is made in all parts throughout the interior of India, some kinds being much better than others. It is the opinion of some writers on materia medica that the *socotrine*, the *mocha*, and the true *hepatic aloes*, are but varieties of the same species of aloe plant.

In a letter lately received by Mr. Aston from Mr. Hagger, the latter says, "You should not forget to take home to England with you some betel-nuts, as my friend Morton would, I am sure, be glad to try the effects of them on dogs and horses. No one here ever thinks of giving any thing to a dog, having worms, but the betel-nut. The natives invariably use them. I have not given a horse calomel for worms since 1832. Whenever the indications of these parasites are manifested, such as staring coat, impaired condition, loss of appetite, &c., I withhold half the dose of aloes, and substitute one or two drachms of the betel-nut in

powder, adding a little more ginger, and it turns out the worms like a 'broom in a gutter.' I think the betel-nut has only to be known in England to come into general use. Its charcoal has long been extolled for making the best tooth powder known.

"Now for a recipe, which, among many others, has lately come to my knowledge from the native Indians. Get a horse that has a whacking big old splent—whether fired or not—one as big as an orange, and that renders him useless; cut a sheep's kidney in two, put a thick layer of coarse salt on it, and, having trimmed the hair off, apply the kidney to the splent, bandaging it down with a piece of oiled silk. When the kidney begins to smell a little, apply a fresh one; and when it has made a good large hole, or half a hundred little ones, from which a copious discharge takes place, apply a plaister of camphorated mercurial ointment for a few days afterwards; and in three weeks the horse will have neither splent nor blemish! There's a recipe for you, worth a year's pay!"

According to Sir Richard Phillips, the betel belongs to the same tribe of plants as the peppers. It is a climbing plant, the leaf in shape and appearance resembling ivy, but more tender and full of juice. He adds, "there is an incredible consumption of betel leaf throughout the east. The inhabitants chew it almost incessantly, and in such quantity that their lips become quite red, and their teeth black, a colour greatly preferred by them to whiteness. They carry it in little white boxes about their persons, and present it to each other, by way of compliment and civility, in the same manner as Europeans do snuff. This is done by the women as well as the men; and it would be considered an offence if those to whom it is offered should refuse to accept and chew it. The leaves are sometimes used alone, but much more commonly when covered with a kind of lime made of sea shell, and wrapped round slices of the areca nut, the fruit of the areca palm, which is of the size of a small egg, and resembles a nutmeg deprived of its husk."

Professor Burnett says, "there are several species of areca, the best known of which is the A. catechu, as it affords the betel-nut, so much resorted to for its intoxicating and narcotic powers. This is almost the only palm which does not yield sago; but from its fruit an astringent extract is procured, that is brought into the market as an inferior sort of catechu. Slices of the betel-nut

wrapped in a leaf of the betel pepper is a favourite masticatory in southern Asia. A little shell lime is added to keep the taste and odour longer in the mouth. It gives the saliva a red hue like that of blood, and by constant use the teeth become blackened; it allays hunger, and is hence chewed, as tobacco is in Europe, to appease the appetite; and it is said to be the height of rudeness in the East to speak to a superior without having *a quid* of betel in the mouth. It produces intoxication when first chewed, but this effect is soon got over, and the natives say that it is a tonic, and moderates profuse perspiration."

The drug I now exhibit is the resinous extract of the wild hemp *(cannabis sativa)*. The following note was transmitted with it:—

My dear Sir,

Be pleased to accept the accompanying drug, which I have brought from India. I do not know whether it is generally known in this country; the Indian name for it is "churrus;" it is a resinous extract obtained from the wild hemp. I have seen several cases of tetanus cured by it in India. The dose I have given is one scruple, in the form of tincture, every four hours, the patient having been first copiously bled, and the bowels frequently acted on by aloes. It has also been used by human surgeons for the cure of cholera with great success; in fact, there are few cases but have yielded to it, when taken in time. Perhaps you are already acquainted with it; if so, pardon the liberty I take in sending it to you, since I do so under the impression that it may not be generally known. The natives of India use it to smoke in their hookas, combined with spices and tobacco, and with it they perfectly stupify themselves; and when they recover from its effects say they have had heavenly dreams. It is much similar to opium in its narcotic effects, but differs from that drug by not producing the same amount of debility subsequently.

Believe me, my dear Sir,

Your's very truly and obliged,

J. W. Hoby.

To Mr. Morton.

I believe the hemp plant has been long known from its possessing narcotic properties, and yielding an intoxicating liquor. "In

India," says Professor Burnett, "hemp is cultivated as a luxury, and used solely as an excitant. It possesses peculiar intoxicating powers, and produces luxurious dreams and trances. The leaves are sometimes chewed, and sometimes smoked as tobacco. A stupifying liquor is also prepared from them; and they enter, with opium, betel-nut, sugar, &c. into various narcotic preparations. Prepared hemp is called by the Arabs *Hashish*, by the Hindoos *Banghie*, by the Turks *Malach*, and by the Hottentots, who get drunk with it, like more civilized communities, *Dacha*. Hemp seems to owe its narcotic powers to a gum resin, obtainable in a separate state from at least one variety and which is called in Nipal *Cheris*."

M. Landerer, speaking of the "Hadshy" of the Turks, says, "this beverage is derived from *Cannabis sativa*. The relations of climate, however, produce a far more considerable development of the narcotic principle.

"The mode of preparing the hadshy is as follows:—When the hemp plants have blossomed, and have begun to form fruit, the delicate shoots, leaves, and unripe fruit are pressed, and set into vinous fermentation by means of a syrup from sweet fruits, or rather are thrown into the fermenting liquid. The fermented liquid is poured into flasks, and frequently coloured red with *Coccus Cacti*, or *Coccus Ilicis*, and then used as a spirit."—*(Medical Times.)*

I know nothing of the action of this agent on the horse, never having given it. But, a short time since, an account of its effects on the human subject appeared in the medical periodicals, communicated chiefly by Dr. Clendinning, who had been induced to make a trial of this extract of hemp through the recommendation of Dr. O'Shaughnessy, of Calcutta, who preferred it to opium.

Dr. Clendinning found it "lessen neuralgic pains, relieve the irritation and spasms of chronic bronchitis, rheumatism, &c.; to subdue sleeplessness or disturbed rest; to be highly useful in checking cough in phthisis, and cramp and irritation in the limbs, &c., without any interference with the digestive processes or intestinal action or secretions, yet with an anodyne and hypnotic effect not less uniform than opium. He gave it trial, also, in several cases of low fever, characterised by spots, tremors, and delirious restlessness, and with very good effects. It repressed delirium and conciliated repose, and thus secured that tranquillity and refresh-

ment, the proper effects of sleep. He reported, also, some instances of the successful use of hemp extract as a pure anodyne to secure sleep, by suppressing pain arising in one case from a cut, in another from a violent purgative, and in a third from rheumatic irritation of the meninges."

Mr. Ley, in a paper read before the Medico-Botanical Society, says that, "Although the hemp is rejected from our officinal preparations in England, it is, and has been for a long series of years, in constant use as a popular remedy throughout the east. It exhales a powerful narcotic odour, and the branches are gelatinous to the touch, with a resinous secretion, which is collected when the seed is found (as the plant is then in the greatest perfection), and is sold under the name of *churrus*: the shoots from which the resin has *not* been collected are cut, dried, and sold as gunjah. Although hemp is no longer used medicinally in England, there is an old Act of Henry the Eighth yet in force, by which it is forbidden to be soaked in ponds or running streams where cattle drink. The older writers speak of it as a violent poison, and state that the water in which it has been soaked produces its effects as soon as drunk. The resin of the *cannabis Indica* is in general use as an intoxicating agent, from the furthermost confines of India to Algiers. If this resin be swallowed, almost invariably the inebriation is of the most cheerful kind, causing the person to sing and dance, to eat food with great relish, and to seek aphrodisiac enjoyment. The intoxication lasts about three hours, when sleep supervenes; it is not followed by nausea or sickness, nor by any symptoms, except slight giddiness, worth recording. These effects are much modified in this country, and much less marked, possibly from the length of the voyage rendering the article deteriorated in value. The subsequent effects are depression of spirits, and relaxation of the muscles in a marked degree; yet the lightness attending that relaxation, the free perspiration on the skin, and the increase of appetite, have made some old rheumatic persons speak of it as the elasticity of youth."—*(Lancet.)*

In the *Edinburgh Monthly Journal* are recorded a series of experiments with Indian Hemp, by Dr. Laurie, and the conclusions to which he comes respecting it are less favourable than those I have adduced: the following are the principal ones:—

"1. It seems to belong to that class of narcotics which rapidly induce excitement and intoxication, followed by sleep, neither sound nor refreshing.

"2. In a full dose it acts powerfully on the heart, causing palpitations, and rapid, weak, intermittent pulse; and on the nervous system, producing delirium, coma, convulsions, and dilated pupils.

"3. Its effects are generally transitory. In one case, however, the intoxication and dilatation of the pupils lasted nearly forty-eight hours.

"4. It is a very uncertain agent, in some cases producing the most violent and seemingly dangerous symptoms, in others being nearly inert.

"5. It very frequently causes vomiting, which, whether it occur spontaneously or from emetics, very speedily relieves its unpleasant, and perhaps dangerous, effects.

"6. Applied around the eye, it does not dilate the pupil.

"7. It exerted little influence on the few patients to whom it was given in the form of enema.

"8. He does not think it is a valuable addition to our narcotic medicines. In very few instances did it act as an agreeable soporific and anodyne; in none did it succeed when opium had failed; and in one case only was it preferred to opium.

"9. So far from acting generally as an anodyne, its effect was so disagreeable, that the majority of those who took it once, only did so a second time on compulsion; and this is the more remarkable, as the patients on whom he experimented belong to a class to whom stimulants of all kinds are familiar, and who would greedily swallow opium and spirits to an unlimited amount.

"10. It caused an immediate craving for food, and, in a few, permanently increased the appetite."

I have collated these testimonies, having no information of my own respecting the action of this drug to communicate to the Association; but I beg to state, that, should any member of the profession be desirous of trying its effects, he shall be supplied with the agent, on application being made for it.

The following communications were then read:—

1.—Case of Filariæ Oculi in the Horse.

By Mr. N. F. Clarkson, *V.S., Hon. E. I. Co.'s Service.*

Trichinopoly, 1836.

This case was singular from there being *two* worms in one eye—the only time I have ever observed a similar instance. The subject was a small pony, belonging to Captain Butcher, of the Commissariat Department at Trichinopoly.

On first seeing the pony only one worm was visible, which was rolling about and curling itself within the eye; the cornea—as is invariably the case—being of a dense milky whiteness.

I ordered a small dose of aloes, sufficient only to create nausea, and directed cold cotton cloths to be hung loosely over the eye till the next day, when I operated and extracted the worm.

The next morning it was reported to me that another worm was to be seen. The aqueous humour by this time had been fully replaced, and the eye was as full as ever. Not, however, wishing to interfere with the newly-formed cicatrix produced by the puncture, I waited a couple of days, continuing the treatment previously stated; and then, with the same success, extracted the second worm, which was longer than the other by about half an inch. The cooling applications being carefully continued, the eye soon became clear, and did as well as could be desired, the sight being perfectly restored.

2.—Case of Filaria Medinensis in the Horse.

By the same.

Katagherry, June 1837.

This case is the only one I have met with in the horse. The subject was of the Australian breed, the property of Captain Taylor, 2d Madras Cavalry. The horse had a short time previous been driven in a buggy some fifty or sixty miles on the road from Trichinopoly to the Neilgherry Hills, but was not observed to be ailing

for a fortnight afterwards; when, on going a journey of about seventeen miles, he became lame in the off hind leg.

I soon detected a small enlargement on the lower part of the large pastern, in the centre of which, from a peculiarly irritable sore, a guinea-worm was seen hanging out, about the length of two inches. It had somewhat the appearance of a small tendon, being about the sixteenth of an inch broad and half that in thickness: the portion that had been most exposed to the air was withered and shrivelled.

On pulling gently at the worm, two inches more were drawn out; and it then became fixed.

Fomentations were directed to be used. On the next morning two inches more of the worm were readily withdrawn from the opening. In this state it continued for three days; when the worm was no longer visible, and I imagined the horsekeeper had used force and broken it. The opening however remained, and from it there was a constant serous exudation for some time; but the swelling in a day or two became less, and the horse hardly evinced any lameness. He then performed a journey of 160 miles in a week, and reached the cantonment of Trichinopoly well.

The above horse came down six weeks afterwards, breaking his knees and laying open the joints, for which he was shot. The hind leg, on post-mortem examination, shewed no trace of the parasite.

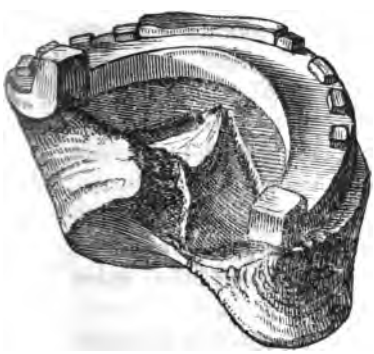
The President.—There is nothing in the character of the filaria oculi denoting it to be of solitary habits. I mean, we cannot detect, or we have hitherto failed in detecting, male and female organs of generation, which some creatures low in the scale of creation, and of known solitary habits, are observed to possess. The fact, however, is now established, that, though this worm is generally found alone, more than one may exist in the eye at the same time. There is another circumstance connected with this parasite, concerning which I am rather curious; and, as Mr. Clarkson is present, I cannot forbear inquiring, whether there is any foundation for the general belief which associates the presence of this worm with a disease known in India by the name of Kumree?

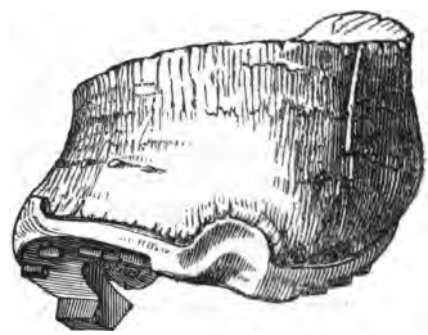
Mr. Clarkson.—I know but of one instance that bears at all upon

this point. An officer in India had two horses, both of which were attacked with kumree, and both were said to have been the subjects of worm in the eye. The fact, however, was not well established, and, for my own part, I do not believe it. I have never seen a case of kumree that in any way inclined me to adopt the generally received opinion, nor can I conceive there is any connexion between the two diseases.

3.—Case of entire Removal of the Hoof, and its Reproduction.

By Mr. B. Cartledge.





Market-street, Sheffield, July 30th, 1844.

Dear Sir,—The case I am about to give you an account of, being one of rare occurrence, I thought it would not prove uninteresting to the members of the Veterinary Medical Association. It is an instance of complete removal of the hoof by mechanical force.

Our patient was a brown mare, five years old, the property of Messrs. Crawshaw & Co., railway contractors on the Sheffield and Manchester line.

On June 20th the mare was, as usual, working on the line, drawing one of the wagons for the removal of soil from one place to another, and, as was the custom, the pace is generally increased at about the distance of from sixty to eighty yards from

where the unloading takes place, in order to add to the velocity, so that the contents of the wagons might roll down so great a precipice. It was at this increased action, when the mare was being removed from the wagon, that she stepped between the ends of two iron rails, sufficiently apart to admit the foot only, when one end of the rail inserted itself between the sole and toe of the shoe, the other at the top and in front of the crust.

The mare, finding herself fixed, endeavoured to disengage herself, and, in doing so, got in front of the wagon, which, coming at a great pace, forced her down into the pit, leaving behind the off fore hoof, which was only removed from its situation between the two rails by a large hammer, it being so firmly wedged in. The shoe and hoof were bent in a very peculiar manner, as the accompanying cast will shew, the inside heel being completely raised from above the level of the frog, not one of the nails being unclenched, or in the slightest degree having given way to so large an amount of force imposed upon them, although the toe of the shoe was raised from the sole by the rail being immediately under it. (*See woodcut.*) The mare had been shod the day before, and, having a good sound foot, the shoe was firmly put on.

Being a mile from home, she was with some difficulty made to travel that distance. On her arrival, my preceptor, Mr. Taylor, was immediately sent for, who found her, as I have before stated, with the off fore foot hoofless.

Proceeding to examine the foot, he ascertained that it had bled considerably, which, however, was stopped by bandages to the foot and a ligature round the coronet. The laminæ on one side, and a small portion of the sensitive sole, though not to any great extent, were lacerated. The coffin-bone was not all injured. The bleeding having nearly ceased, she was put into slings, the foot carefully washed with warm water, and immediately bound up with pledgets of tow saturated with the simple tincture of myrrh and tincture of opium, of each equal parts.

The dressing was ordered to be allowed to remain on all night, and on the following morning to be removed. The foot was then bathed, as before, in warm water, and the application of the tinctures repeated night and morning. The medicine internally given was castor oil, with tinct. opium, and this, in a diminished dose, was ordered the next morning. Blood was also abstracted from

the jugular vein, to the amount of six quarts, so as to allay the inflammatory fever set up. The food consisted of bran and linseed, with small portions of hay and water. The mare being in a highly excited state, and suffering such severe pain, the opinion Mr. Taylor gave was, that should she get over the first four days (which appeared quite uncertain) he had no doubt of her ultimately getting well, and also that she would have a perfect hoof formed. It was now left for the owners' consideration, whether they thought the mare worth her keep till such took place, the time mentioned by Mr. Taylor being four or five months. She was seen again the fourth day after the accident, and was then found to be perfectly tranquil, and feeding well; her pulse, which at the first visit could not be counted, was now not more than 65 beats in the minute. On removing the dressings the foot presented a very favourable appearance; the treatment therefore varied only in the application of a linseed meal poultice over the former dressings of tinctures of opium and myrrh, confining the whole in a soft leather boot. Diet as before; in addition to which give a few oats. Should the bowels become constipated, repeat the castor oil without the opium.

June 28th.—The animal was again seen, and appeared to be going on very favourably. The poultices were directed to be discontinued, and the parts dressed, every other day, with sol. sulph. cupri, as the granulations were getting rather luxuriant.

July 6th.—To-day she was found to have gone on so well, having, two days before, been removed from the slings, that it was thought justifiable to turn her out, protecting the foot with a boot, and ordering the dressings to be repeated.

July 23d.—She was seen by me, in the field, where I had the boot removed; and so much had she improved, that not less than two inches of crust, proceeding from the coronary ring, had been formed, and the foot looked remarkably healthy.

I am, your's, &c.

To Mr. Morton.

The President.—This case is so interesting and novel in its nature, and so encouraging in its results, that I cannot refrain from making a few observations with regard to it. I have both seen and heard of cases of sloughing of the hoof supervening upon

inflammation of the vascular uniting medium between the hoof and the internal structures of the foot, and where a reproduction of it has also taken place, although, perhaps, not so perfect in form as the original hoof, yet sufficiently tough and resisting to enable the horse to progress with comparative freedom and ease, thereby rendering his services available to his owner. I have also known instances where the hoof has been torn off, as in this case, by mechanical force; but in all of them such has been the extent of the laceration of the secreting surfaces, that no hope could be entertained of any thing approaching to a perfect reproduction of the horny covering, and the suffering animals have consequently been consigned to the hands of the slaughterman.

I think that this case stands alone in the records of veterinary science, and, therefore, it is the more incumbent on us to obtain all the information we can respecting it. Mr. Cartledge has given us a general history of the accident, and of the nature of the treatment pursued; but I am desirous of knowing the precise time occupied in the reproduction of the different constituent parts of the hoof and the order of their formation, and especially to be informed with reference to the development of the horn over the lacerated parts of the laminæ; I therefore propose that our Secretary be requested to solicit further information on these points.

Dear Sir, *Market-street, Sheffield, Dec. 15th*, 1844.

By referring to the history of the case I have already forwarded, you will find that the accident occurred on the 20th June, a fortnight after which time I observed the horny crust to be forming from the coronet, and the insensitive laminæ at the same time, in which, on every visit, an increase of growth was perceptible, and it soon attained a thickness exceeding that of the other hoof, but which, at the same time, presented a more upright appearance. It was not until three weeks after our first visit that any formation of new sole or frog was to be seen. The sole, of the two, was the first, being secreted by the sensitive sole, the growth proceeding from the heels. In like manner the insensible frog was being produced by the sensitive.

During the last week in October, the mare having her foot pro-

tected with a bar-shoe plated at the bottom, and so formed as to open without the necessity of removing the shoe, in order to facilitate the applications of the tinctures, was put to light work, which has since been gradually increased, and she now performs her usual labour equal to any other horse.

I send you a sketch of the present appearance of the foot. You will observe by this sketch, that the growth of the wall or crust, and insensitive laminæ is not yet quite complete; nor is the sole, there being wanting about an inch of the horny substance of it, the entire completion of which I should rather doubt, as I mentioned, in my former communication, that the sensitive laminæ and a small portion of the sole were lacerated; and it is in these parts that the imperfections exist.

I remain, dear Sir,

Your's obliged,

B. CARTLEDGE.

To Mr. Morton.

P.S.—Perhaps I should have stated, that the yet imperfectly-formed wall not admitting of the insertion of nails all around it, the shoe is held on partly by nails and partly by a strap attached to it bound round the coronet.

4.—CASE OF HYDROPHOBIA (RABIES) IN A HORSE.

By Mr. W. RADDALL.

Plymouth, May 8, 1844.

Dear Sir,—HAVING been called, a short time since, to see a very interesting case of hydrophobia in a horse, and not having seen a similar one recorded, I am induced to give you a rough sketch of it, which, if you deem it worthy, you are quite at liberty to insert in the *Transactions of the Association.* The subject was

a roan pony, twelve years of age, broken winded, and occasionally used in saddle and harness, his work, on an average, not exceeding ten miles a-day. He had been kept in the stable during the past winter, and fed on ordinary diet. He was the property of Mr. Newton, a clergyman residing about three miles from Plymouth, and his natural temper was very good. Mr. N. had a Blenheim spaniel that had been bitten by a hound about a fortnight previous to the pony shewing any symptoms of disease. The beagle being known at the time to be hydrophobic, both dogs were destroyed on the following day, and both had access to the stable in which the pony was kept; but neither of them was seen to bite the pony. On Monday, March 1st, the pony was observed to be dull and off his feed, when he was sent to Plymouth and placed under the care of a groom in a livery stable. During the whole of Monday he frequently made attempts to stale, passing small quantities of urine at a time, which was of a high colour, and a tremulous motion pervaded the muscles of the chest and shoulders. In the evening the groom bled him to the extent of three quarts, and gave him an ounce of nitrate of potash in a quart of gruel. The animal, however, would neither eat, drink, nor lie down, but stood still, and appeared very dull. On Tuesday he made several attempts to drink, but would, after sipping once or twice, desist from any further attempt to swallow, and commence rubbing his lips and mouth on the top of the pail, as though he would fain drink, but dare not attempt it. The bowels being constipated, a ball composed of four drachms of Barbadoes aloes was given him, and an injection thrown up, which brought away a few hardened fæces. On Wednesday morning the groom was particularly struck with the peculiar bright or rather wild appearance of his eyes, he knowing the general nauseating effects of the agent that had been given. The bowels not having responded, six ounces of castor oil were exhibited, and another injection thrown up. Urine of a healthy appearance was voided two or three times during the day, and much flatus passed. At eight P.M. on Wednesday, the symptoms became more urgent. He commenced jumping from one side of the stall to the other; the respiration was laboured, and he was seen frequently biting his fore legs and sides, and even bit a piece of integument, the size of a crown piece, off his near knee: all the muscles in the region of the head, neck, chest, and shoul-

ders were in a state of convulsive tremor. He was again bled to the extent of five quarts, shortly after which, as he became much worse, I was requested to see him for the first time. When I arrived, in order to prevent his biting himself, he had been muzzled. On approaching him with a light in my hand, he made a sudden dash at me, as far as his halter would allow him to jump. On watching him a short time, I pronounced him to be labouring under hydrophobia. His respiration, at times, was very laborious, which evidently came on in fits. These convulsive fits returned at intervals of about fifteen or twenty minutes, each succeeding one being more intense in its nature than the one which had preceded it. All the symptoms were aggravated by throwing open the door of the stable behind him, so as to allow a current of air to fall on him. In the violence of the paroxysms he would suddenly throw himself down with force on the pavement, bite the muzzle, and attempt to bite himself, his respiration being still much laboured; in fact, it appeared as if the glottis partook of the spasm, for he would produce that peculiar noise in respiration which is heard in the human subject when labouring under a severe attack of asthma. He continued to get worse until about two o'clock on Thursday morning, when death put an end to his sufferings, which were of the most frightful character I ever beheld. On the following day, at two o'clock, twelve hours after death, a post-mortem examination was made of the body. There was an effusion of about three ounces of serum between the membranes of the brain; but the substance of the brain and the membranes themselves were perfectly healthy. The vessels of the glottis, and pharynx, and larynx, were highly congested, and small spots of ecchymosis existed, particularly around the epiglottis; the salivary glands were considerably injected; the stomach contained a quantity of crude ingesta, such as half-masticated hay and reeds, and a slight blush of inflammation existed on the mucous coat. The abdominal viscera were all perfectly healthy; the whole of the theca vertebralis was considerably injected, as were the pleuræ and peritoneum reflected over the dorsal and lumbar vertebra; but the other portions of these membranes were perfectly normal in appearance.

Hydrophobia has been raging to a fearful extent in this neighbourhood for the last six months: two or three deaths have oc-

curred in the human subject. One poor man I witnessed the death of, whose agonies I shall never forget.

I am extremely sorry that I did not inoculate an old horse or an ass with the saliva taken from the pony whose case I have just described, as it would tend to decide the question, whether hydrophobia be a disease originating in the canine and feline species, and incapable of being communicated by animals of the herbivorous and graminivorous tribes, or whether it may not be conveyed by any infected animal to animated nature throughout the whole creation.

I am,

Your's very truly.

To Mr. Morton.

The President.—The peculiar feature of this case is the rapidity with which the symptoms were developed. If the spaniel which was bitten by the rabid dog was destroyed before the disease developed itself, then, as all are agreed, that previous to such development the bite is innoxious, the same dog that bit the spaniel must also have bitten the horse. My experience convinces me that in the horse rabies is not exhibited before three weeks, nor later than seven weeks after the period of inoculation; and it is a characteristic of that disease in this animal, that it is always accompanied with violence. The dog is not always vicious. In the dumb stage of rabies his naturally affectionate disposition is increased, neither is the aversion to water in the canine species a symptom of rabies; in the horse, however, this disease sometimes calls forth the dread of fluids, which marks hydrophobia in the human subject, while at the same time it generates a malice and a violence that render every precaution on the part of the attendants necessary. So great is this violence in some cases, that I well remember an animal which I attended some years since biting at every thing around him, and with so much force that the incisor teeth—strong and powerful as they are—were by his desperate efforts actually fractured to the gums.

5.—A Case of Carcinoma in the Brain of a Horse.

By Mr. R. Barrow.

Newmarket, 15th May, 1844.

Dear Sir,—I have sent you the right lateral lobe of the cerebellum, taken from a mare, which appears to partake of a carcinomatous character. I have also sent that portion of the cranium to which the carcinomatous tumour was attached. As I consider it a case of a novel description, I should wish you to lay it before the Association. The particulars of the case I will send in a few days.

I remain,

Your's truly.

To Mr. Morton.

Newmarket, May 23, 1844.

Dear Sir,—The mare to which I alluded in a former letter was seven years old, and of a plethoric habit. She was attacked, Feb. 18, 1844, with partial paralysis: she was then almost incapable of standing, and when caused to move, threw her limbs about in a very ludicrous manner. Pulse 44, full and bounding—bowels constipated—respiration undisturbed—appetite unimpaired. I abstracted blood to the amount of ℔ xviij before I made any impression on the pulse; administered a brisk purgative, threw up frequent enemas, and limited the diet to bran mashes. Under this treatment, with the occasional exhibition of small doses of aloes, she apparently recovered. On March the 4th she had a recurrence of the attack. The same treatment was had recourse to, with the exception that the bleeding was not carried to such an extent, and she again, to all appearance, recovered; at any rate, she took her usual exercise, and was being prepared for work. On April the 16th the mare again relapsed, and was sent to our infirmary. The instability of her movements was the same as previously described, but the paralysis was confined to the off side. I now inserted setons on each side of her poll and under the jaw, and repeatedly applied blisters to the whole course of the spine, and

gave repeated doses of aloes, so as to overcome the constipation of the bowels, which had become exceedingly obstinate. But little relief being afforded, I determined on trying the effects of strichnia, and gave it in gr.ij doses twice a-day, increasing the dose until she took ten grains daily, but without any apparent effect; in fact, the instability became daily more manifest. The disease at length degenerated into a complete case of hemiplegia, attacking the off side of the body. The head and neck were drawn to the off shoulder; the eyeball was sunk deeply downwards and inwards within the orbit, occlusion of the nostril existed, and sensation was destroyed on the affected side. The case being now utterly hopeless, I recommended the owner to have her destroyed, which was accordingly done.

The *post-mortem* appearances of the abdominal and thoracic viscera were perfectly normal. There was effusion to a considerable extent within the ventricles of the brain, and likewise within the sheath of the medulla spinalis; there was, also, softening of the substance of the medulla spinalis, and carcinoma of the right lobe of the cerebellum.

I have always understood and observed, that disease of one side of the brain generally affects the opposite side of the body; but this case is an exception. I am sorry I have not sufficient time to expatiate more fully upon this interesting case; and, therefore, must leave the members of the Association to draw their own conclusions.

I remain,

Your's sincerely.

My dear Sir, *Newmarket, May 29th,* 1844.

I regret I was not sufficiently explicit in my last communication. I, however, trust I shall be able to shew I am right, although there appears a little discrepancy. The limbs on the off or right side of the body were certainly rendered utterly powerless; for when she attempted to move she fairly pulled them after her; but the limbs on the near or left side retained their power of motion to the last. The head and neck, being drawn towards the off or right shoulder, impresses you with the idea that the paralysis was

on the near or left side: it may be so, as far as the muscles of the neck are concerned; but it was not so with the head; the eye on the right side being so depressed within the orbit that the transparent cornea was nearly hidden from view, the right nostril was also collapsed; and these symptoms, in conjunction with paralysis of the limbs on one side, warranted me, I think, in considering it a case of hemiplegia, attacking the off or right side of the body. May not that peculiarity of the neck be occasioned by the pressure of the fluid at some particular part? *Sensation, too, was destroyed on the right side only.* I think it necessary to state that she took the strychnia for the period of three weeks.

Now, I think I have answered your questions, and, I trust, to your satisfaction; but I am fearful I am giving you unnecessary trouble.

I am,

Your's most sincerely,

RICHARD BARROW.

Mr. W. J. T. Morton.

The President.—As has been stated, on reading Mr. Barrow's description of this case, which presents so many peculiarities, I could not forbear requesting further particulars; for, at first, I candidly confess I was doubtful whether, in the haste of writing, some mistake had not, unintentionally, been made. The peculiarities to which I allude are these;—the head was drawn to the *right* side, yet the *right* limbs were paralyzed. Mr. Barrow, also, in his last communication, informs us that the right eye was drawn within the orbit, while the nostril on the same side was collapsed. I can bear testimony to Mr. Barrow being a most minute observer, a gentleman of the strictest veracity, and a practitioner of unquestionable talent. There is, therefore, in my mind, no room to doubt the correctness of the description he has favoured us with. It remains only for us to endeavour to account for symptoms which, however contradictory they may appear, we may rest assured existed. In the head of the same animal we hear of spasm and of palsy too; precisely opposite conditions present at the same time. Nor is that all. In the trunk also there was spasmodic contraction of the muscles of the right side of the neck, with a loss of power and sensibility in both the extremities of the same side. It was, therefore, a

case of partial paralysis, associated with spasm, rather than one of pure hemiplegia; and in the partiality the disease manifested, as it were, for particular parts and organs, the history of the case becomes important and extraordinary. It merits our most patient investigation. The mare was first attacked in February last. The peculiarity of gait was then the leading symptom; for, although the bowels were constipated, the pulse was but 44, and the breathing not accelerated. The affection of the limbs Mr. Barrow refers to the brain, and by appropriate and active means succeeds in removing it. The animal is seemingly restored, and her owner again puts her to work. The interval of apparent health, however, was but short: a fortnight only elapsed between the date of her first seizure and the commencement of the second attack. Again Mr. Barrow's assistance is solicited, and once more his skill restores the animal to her master, seemingly cured. The mare is being prepared for work when the symptoms for the third time return, and in a more aggravated form. It is during this third attack that those peculiar and contradictory states of the same side of the body appeared. The measures resorted to for her relief present no novelty: they were, however, appropriate and energetic; but failing to produce any beneficial effect, Mr. Barrow advised the owner to have the animal destroyed. That advice was followed, and what does the *post-mortem* examination present? Fluid in the ventricles of the brain and theca vertebralis, with softening of the spinal marrow, and the tumour now before us growing from the floor of the cranium.

The surface of the tumour is marked by many vessels; and its substance consists of several lobes of unequal size held together by arteries and veins with their connecting cellular investment. It is firm, almost hard to the touch, and on cutting into it, I find it to be composed chiefly of condensed tissue, within which cells and granules can be perceived. I agree with Mr. Barrow, that it it is of a carcinomatous nature. This cancerous growth was placed between the basilar process of the occiput and the petrous temporal bone. It overlaid and obliterated the foramen lacera basis cranii, pressing against the cerebral surface of the right side of the cranium. The internal auditory meatus is filled with its substance, and Nature, striving to remedy the loss occasioned by the obliteration of the important cavity through which the eighth pair of

nerves emerges and from which the jugular vein takes its origin, has absorbed that part of the cranium which surrounds and completes the lingual foramen, seeking thereby to provide an exit for the blood, which otherwise might have produced a fatal congestion. The lingual foramen and the foramen lacera basis cranii have become, as it were, fused together, and as that part of the jugular attached to the portion of skull before us appears pervious, it is through this abnormal channel the venous blood must have flowed. Congestion, therefore, was no cause of the symptoms produced by the disease. We are deprived of this ready and acceptable source of explanation for almost every kind of cerebral disturbance.

Let us, then, reflect, and we shall perceive the disease was in the first instance limited to the cerebellum, and, being probably of a subacute inflammatory nature, yielded to treatment. It was afterwards that the surrounding parts became involved, and then the best directed and most energetic measures afforded no relief.

But, conjoined with the cerebral tumour, the post-mortem shewed the spinal marrow to be softened; and to this, I think, we must attribute the paralysis of the extremities. The softening may, perhaps, be reasonably ascribed to the general derangement produced in the nervous and vascular systems by the fluid deposited in the theca vertebralis and the cranial disease. The tumour must have caused excessive cerebral disturbance. The whole of the brain on the right side must have been, sympathetically, more or less involved; but to the parts removed from absolute pressure the effect would probably be of an exciting nature. Now, gentlemen, the motor nerves of the orbit, being placed anterior to the cerebellum, were involved, but not paralyzed. Spasm was the result of the excited actiou; and thus the globe of the eye was drawn inward. But the portio dura, which supplies the lips and face with motion, compressed by the abnormal growth, was, as it were, tied within a ligature, and utterly incapacitated from performing its function. To the pressure, therefore, of the tumour I attribute the paralysis of the lips and nostril: by the excited action or inflammation accompanying the growth, I account for the spasm of the ocular muscles, the motor nerves of which were placed beyond the reach of pressure. The compression of the medulla oblongata on the right side, on the principle of the decussation of its

fibres, satisfactorily explains the loss of resistant contractility in the muscles on the left side of the neck; while the nerves on the right side may have shared in the stimulating effect which operated on those originating in the anterior of the brain.

It is far too common a practice to associate every nervous disorder with the loss of power or sensibility. Too often is it forgotten that excess is as much a symptom of disease as diminution. Plethora and atrophy are alike symptomatic of derangement. Health is the equilibrium; and whatever sways the balance, no matter to which side the beam inclines, originates disorder. The over-nice, who picks his food and complains that all he tastes is badly flavoured,—that sensitive appetite is as much diseased as is the one who ravenously swallows every species of provender, regardless of its quality, so that it will but fill his stomach. It should not be lost sight of, that the two opposite extremes often tend to produce the same result. And in nervous pathology, excessive action—exemplified in tetanus—or loss of action, as in paralysis, are alike symptoms that demand the serious attention of the practitioner. In the one case his efforts must be directed to abate the increased energy of the vital force, which is rapidly hurrying the animal on to dissolution; and, in the other, he is required to excite and rouse the declining embers of vitality, so as, in either case, to restore that equilibrium of power between the laws of chemistry and the laws of life which we usually denominate health. It is not always in cases of cerebral injury that, even where pressure may be reasonably expected to exist, we may with certainty predict paralysis as the termination. This leads me to the consideration of an interesting case which, at the conclusion of last session, was treated in this infirmary:—A horse was admitted which had received a kick upon the forehead, by which the frontal bones were injured. Examination of the wound detected a slight fissure in the bone, inclining to the right side of the cranium. The pulse was somewhat accelerated, and the constitutional excitement was by no means great; the chief symptom being an almost incessant turning of the head towards the side, and always in the same direction. He would, also, protrude the nose and curl the lip, while the ears were laid backward; and as his gaze was not of the unconscious nature that denotes mental derangement, but indicated design, as if the animal would by the action have pointed to the seat of pain, it be-

came difficult not to believe he laboured under some abdominal affection. No one who had not seen the wound upon the forehead could, by the symptoms, have arrived at any other conclusion; a correct diagnosis, therefore, was attended with some difficulty. It is true that no lesion connected with the cranium can be so slight as not to demand attention. Nevertheless, I have removed large portions of the cerebrum in various animals, and apparently with little pain or inconvenience to them; yet we know the organ that thus permits its integrity to be interfered with by the knife, may, by the pressure of a substance so minute as to excite our wonder, be irreparably injured. Such considerations made me pay particular attention to the wound upon the forehead in this case. The surrounding integument was slightly swollen, and indicated the presence of an imprisoned fluid; I therefore enlarged the orifice, and let out a small portion of pus, which was dark in colour, and had a somewhat fœtid odour. By this operation a larger surface of the bone was exposed, which was found to be denuded of its pericranium and softened, but no depression of it was detectible. The animal was bled, an aperient administered, and constant fomentations were applied to the forehead. On the following day the bowels responded to the medicine, and the horse appeared to improve under the treatment. Still the locality of the injury, and the extent and nature of the diseased bone, made me dubious of the successful termination of the case. The patient, however, continued for several days without any material change of symptoms, other than the contraction of the edges of the wound and a diminution of the discharge. The peculiar symptom of pointing his nose to his abdomen was as frequent as ever, yet his evacuations were regular, his respiration undisturbed, and his appetite good. He would often take rest by lying down in his box, and exhibit no restlessness beyond turning his head to his side. The pulse, even now, was but little quickened, and evinced its normal force. It was thought advisable by some parties who saw the case to trephine the cranium; but several consultations being held by Professors Sewell, Simonds, and myself, as to the propriety of performing this operation, and, taking into consideration the non-existence of depression and the extent of the softened surface of bone, we could not see any thing to warrant the adoption of the proposal. Trephining the cranium is a more safe and

simple operation when performed on the human subject than it can possibly be rendered to the horse. The patient is more susceptible of control; and to jag the dura mater with the instrument, or plunge it into the substance of the cerebrum, accidents, which the struggles of an animal might easily occasion, would greatly endanger the case, and probably place the operator in no very enviable situation. The surgeon, however, should have the heart of a lion, and, had there been no other objections, I should not have hesitated. Again; the cranium of man is, in a great measure, free from muscular attachment; that of the horse is entirely covered by a muscle second to none in the whole body in vascularity, and as constantly and actively employed as any other, if we except those of organic life;—I mean the temporalis. To cut through and remove a large portion of the substance of this muscle was a proceeding which I thought required a pressing necessity for its justification, and, had it been safely effected, and the operation even successfully concluded, I could not forget that the cranial bones are never reproduced. A horse with a hole in his skull, or a cavity simply closed by skin and membrane, would seem to me to be a creature unfitted for the safe uses of his master. When we consider how frequently the head of the horse is struck, and how much it is subjected to pressure and irritation caused by the harness, it certainly appears to me that the entirety of the normal protection is not more than equal to the efficient protection of the brain. Moreover, the relative position of the veterinary and the human practitioner is very different. Let the one but save the life, even though he leave the body powerless and the mind vacant, gratitude and reward are heaped upon him: but of us it is demanded not simply to preserve existence;—the horseman does not ask us merely to prolong the life of his faithful servant, but to renew and to restore those energies that render the animal's services of value to him. We may subdue the disease, remove all danger, yet if we leave the activity or intelligence of our patient weaker than before, no matter how much we may have striven to avert those consequences, the owner looks at the bill, and, at the lessened value of his servant, adds up the two amounts, and by the total estimates the veterinary surgeon's professional labour. It is not with life then, but with pounds shillings and pence, we have to deal, and we have always to calculate how much we can

save when a case is undertaken. Thus, then, as I felt that a horse that had been trephined on the cranium, even though the operation were attended with the most successful result that could be expected from it, would be greatly lessened in value, I thought it better to watch the progress of the case, which did not at that time present any very urgent symptoms.

Six or seven days after his admission, the horse during the night became extremely violent. The watchman immediately gave the alarm, and without loss of time, though certainly at considerable hazard, he was bled from the jugular vein. How much blood was extracted I cannot say—the stream was allowed to flow until the animal fell. The orifice was then pinned up: shortly afterwards he arose, and was removed to a larger box, when the urgency of the symptoms became increased—he again fell, and was secured; but no time was afforded us to adopt any further treatment, as in a very short time he died, exhibiting the most violent symptoms of phrenzy.

The post-mortem examination exhibited the viscera of the abdomen and thorax healthy. A large extent of surface of the frontal, together with a portion of the parietal bones, inclining to the right side of the head were found softened; while upon the internal surface, both facial and cranial, of the frontal bones, there was observed an extensive osseous deposit, proving that the internal inflammation had been considerable. The dura mater was much injected, and in the substance of the cerebrum an abscess containing about two drachms of pus, in a well-defined cavity, was found. The vessels ramifying in the substance of the right hemisphere were dilated and engorged with blood, and, by comparison, it was easily perceived that the diseased side of the brain was considerably enlarged. *(See engraving, fig. 1.)*

In this case, then, pressure was present: yet it was unattended with any loss of action; indeed, action in excess was developed during the progress of the disease, phrenitis in its most acute form marking the termination of the case. The pressure had been gradual, and to this the brain had accommodated itself. It is surprising how great an extent of gradual pressure the brain can sustain without giving rise to functional disorder, and equally wonderful is the slight amount of sudden concussion which may deprive it of

vitality. In Mr. Barrow's case the pressure was endured till the growth of the tumour positively compressed the nerves; and in it we must remember relief was afforded twice by treatment, though in neither instance can we believe the means had recourse to retarded the growth of the tumour. In the case of cerebral abscess which I have just related, the pressure was of secondary importance; the spread of inflammation consequent on the suppurative action producing phrenitic symptoms in their most active and violent form.

6.—A Case of Diseased Hock.

By Mr. J. Tombs.

My dear Sir, *Pershore, Sept. 10th,* 1844.

I have sent per rail-road the off hock of a half-bred mare. It was kicked on the outside about a month ago; and there has been a copious discharge of synovia ever since. The usual remedies were resorted to, which proved ineffectual. The hock being so extensively diseased, I considered it advisable to have the animal destroyed. I have forwarded the diseased specimen, thinking it might be serviceable to some of the junior members of the Association.

I am, dear Sir,

Your's very truly.

To Mr. W. J. T. Morton.

This morbid specimen having been examined by Mr. Mayhew, he found a small opening on the exterior surface of the joint, from which there was an exudation of laudable pus. The hock was much swollen, and, on removing the skin, an extensive patch (about the size of the palm of the hand) of inflammation was observed. This patch of inflammation was of a dark colour, loose and fibrous, presenting an appearance of having contained fluid, but none was present: around this part, running between and beneath the tendon and ligaments, was a considerable quantity of

laudable pus, which, however, seemed to take no definite direction, but appeared to be indiscriminately distributed over nearly the entire joint. After the removal of the skin, the bone could be plainly felt by the probe being passed down the tube of the external orifice.

On cutting into the superior synovial sac, a large quantity of dark-coloured opaque fluid escaped; and the internal surface of the membrane was discoloured, inflamed, and in places had begun to granulate. The cartilage on the tibia and astragalus was in some parts absorbed, in others ulcerated, while in some parts it was discoloured, and shewed the inflamed bone beneath it. No fracture could be detected.

7.—Case of Ruptured Rectum.

By Mr. J. Woodger.

Sir, *Paddington, Aug.* 25, 1844.

I have sent some morbid parts, with the history of a case which I think may not be uninteresting to the members of the Veterinary Association. It is that of a ruptured rectum, which, as you perceive, was caused by a part of an oat-hair calculus that had become separated from the remaining portion lodged in the colon, and, having passed on to this intestine, it became impacted there until rupture ensued, which I think was caused by the animal's suddenly falling down.

The subject from which it was taken was an aged chestnut horse. He was brought at three o'clock, P.M., on Friday afternoon last, to my infirmary. The symptoms then present were those generally exhibited in spasmodic colic. He was attacked at seven o'clock, A.M.; but the owner neglected to send for medical assistance until the above period. Not the least hope of my patient recovering was entertained by me when I first saw him, and he died three hours after he was admitted.

Post-mortem appearances.—The abdomen was nearly full of dark-coloured fluid, which had escaped from the rupture in the

rectum, caused as I have already stated. The other portion of the calculus I found in the colon: the peritoneum, and nearly the whole of the large intestines, presented a very intense degree of inflammation.

I am, Sir,

Your humble servant.

COMMUNICATIONS AND EXTRACTS.

Case of Ossification of the Cerebellum of a Horse.

By Professor Sewell.

In the museums of the universities of Milan in Italy, and Upsal in Sweden, and in the possession of a private individual in this country, to which publicity has been given in an early number of the *Proceedings of the Veterinary Medical Association*, are specimens of ossified brains of oxen; at least these morbid growths are so designated. They appear to me to be osseous tumours proceeding from the inner table of the skull, and, as the brain is displaced by them, so they fill up the cranial cavity. The present case is altogether dissimilar to these, and it occurred in the horse.

The preparation was sent to me, several years since, by Mr. Child, V.S., when he was residing near High Wycombe.

The entire brain was forwarded; but the cerebrum and medulla oblongata were so much crushed that not any thing definite was observable, except what appeared to be granules of ossific depositions pervading their structure. The cerebellum, however, was solid; thus it preserved its form, and so dense was it, that it had been sawn through into two nearly equal portions. These have been carefully preserved by me; for I believe the specimen to be unique in this country, a similar one not being found in the museums of the college of physicians or of surgeons.

The history of the case, which accompanied the preparation, is briefly this:—The horse was observed to be extremely lethargic and inactive for some weeks, when he was placed under the care of a country practitioner. The treatment had recourse to is not

known; but the symptoms continued to increase in urgency until they indicated phrenitis. The animal appeared to be almost blind, and when moving about he would unconsciously strike his head against the walls of the place in which he was. Ultimately, he became perfectly comatose; then paralysis of the posterior half of the body and limbs supervened, which was followed by delirium and death.

It was considered a case of what is termed "mad staggers" by the older practitioners, but not of an ordinary character, on account of the length of time intervening between the commencement and termination of the disease. This led to an examination post-mortem, when the brain was found to have undergone the peculiar change already stated. Unfortunately it was removed by a person unaccustomed to anatomical investigations; it was therefore roughly handled, and, being shewn to Mr. Child as a curiosity, he obtained it, and kindly transmitted it to me.

Having forwarded a small portion of the abnormal deposit to Dr. Prout, I am indebted to him for the following communication:—

Sackville-street, 24th Oct., 1844.

Dear Sir,—I have examined the small fragment of the tumour you sent me, and find the earthy portion of the mass (amounting to about one-half of the whole by estimation) to consist of bone earth, or phosphate of lime. The rest is animal matter, to which I cannot venture to give a name, except that a small portion of it appears to be fat. When burnt, the earthy matter retained the shape of the original fragment, and, on examination with a magnifier, appeared to have a structure somewhat analogous to bone.

I remain, dear Sir,

Your's very truly,

WM. PROUT.

To W. Sewell, Esq.

This case appearing to us to be one of considerable interest, as well as one of most unusual occurrence, we have been induced to solicit Mr. Erasmus Wilson to subject a portion of the cere-

bellum to microscopical examination; which he has most obligingly done, and, in addition, he has given us drawings of the same, which we have made a part of the engraved plate, and to which, with the explanations, we refer our readers. *(See plate, fig. 3.)* In reference to the structure of the cerebral tumour, Mr. Wilson remarks, "I think it not unlikely that the cells represented in *figure* 3 are nerve cells, with altered contents. The tumour offered some little resistance to the knife, and when dried was brittle and light. In order to ascertain the nature and proportion of the calcareous matter contained in the cells, I requested my friend, Mr. Charles Swainland, to submit a portion of it to chemical analysis, and he finds it to consist of—

Animal matter	6
Phosphate of lime	1
Iron, a trace."	

Case of large Cystic Calculus voided entire by a Mare.

By Mr. J. R. Jackson.

52, *Coleshill-street, Eaton-square,* 17*th Oct.*, 1844.

Sir,—Permit me to present to the museum of the Royal Veterinary College the accompanying urinary calculus, which was some years since voided by a beautiful mare in my presence.

The mare had been ill for some time, and passed her urine with pain and difficulty. Being one day in the stable with her owner, we were witnesses to the violent efforts of the poor animal, whose straining was painful to behold: after waiting two or three minutes, out flew a calculus, striking the stable door with some force. Its exit was followed by a very copious discharge of urine and blood. It is needless to add, that the mare almost immediately after got well. I kept the calculus, and, although it was repeatedly washed, worms continued to be engendered on its surface for a long time. At last it dried thoroughly, since which it has lost

somewhat of its size and weight by the disintegration of its but slightly adherent mass.

Trusting this trifle may be worthy of being placed in the collection of the College,

I am, Sir,

To Professor Sewell. Your most obedient.

[This calculus is probably the largest ever passed through the natural channel—the urethra—without an operation. It is of an ovoid form, has all the external characters of the concretions usually met with in the bladder of the horse, weighs 5¾ ounces troy, and consists of animal matter with carbonate of lime.]

Mackintosh's Solution of Indian Rubber recommended for staying the escape of Synovia from open Joints.

By Mr. T. King.

Newcastle-upon-Tyne, Sept. 14, 1844.

Dear Sir,—I feel a pleasure in communicating to you, and through you to the profession, that I have lately been using Mackintosh's solution of Indian rubber as a mechanical agent for arresting synovial discharges from the joints, &c., and have found it answer admirably. My mode of application is to lay a good coating of it upon the skin surrounding the wound regularly for the space of a couple of inches or so; then to place upon that a thin pledget of dry tow, and over that another coating of the solution; then a second pledget of tow a little thicker than the first; and, lastly, in cases where the situation admits of it, a good cotton roller bandage well put on, and then smeared with another coating of the solution. In cases where it is not practicable to put on a bandage, I simply put on the different layers of tow and solution, which adhere invariably much firmer than any thing I have ever yet used.

I remain, Sir,

To Mr. Morton. Your's very truly.

[We think the above plan deserving of trial. In one instance we have adopted it, and the success attendant warrants us to speak in commendation of it.]

[The following note has been received from Mr. Read, to which we give immediate insertion] :—

My dear Sir, *Crediton, Dec.* 14, 1844.

In my paper on "poisoning by yew," in the *Transactions of the Veterinary Medical Association*, I perceive from the last number of that work that Mr. Robb cannot have carefully read the preamble to the same, it being there distinctly stated the animals were feeding on *straw*, consequently the word *leguminous* is a mistake. It ought to have been the *stamineous* or *staminaceous* part of *legumens* and *cereulea*. I am well aware that pulse contains an abundant supply of azotized material; and if Mr. Robb will peruse the volumes of *The Veterinarian*, and take a little time in reading them, he will perceive that in the majority of cases, when yew has acted as a poison, it was when there was a want of albuminous food or provender that the animals were poisoned by it: however, I thank Mr. Robb for noticing the error.

I am, dear Sir,

Your's truly,

Robert Read.

To Mr. Morton.

P.S.—Will you please correct the mistake in the next number of the *Transactions*.

On the Classification, Structure, and Development of the Echino-coccus Hominis, shewing reasons for regarding it as a species of Cysticercus.

Under the above title a paper was recently communicated to the Royal Medical and Chirurgical Society by Mr. Erasmus Wilson; and as the echino-coccus hominis differs in no essential particulars from the echino-coccus veterinorum, we proceed to lay before our readers the abstract of Mr. Wilson's paper, published in the medical journals.

"The author agrees in the opinion, now become general, of the universality of this curious entozoon in the sacs of the common acephalo-cyst, but differs with all preceding writers in regarding it as a fixed or pedunculate animal in its perfect state as well as in its undeveloped form. The cases in which

it was observed, were the common hydatid tumour of the liver. The little animal measures in its longest diameter from $\frac{1}{100}$ to $\frac{1}{175}$ of an inch, is scarcely distinguishable by the naked eye, and is enclosed in clusters of from two to one hundred in a proper membrane, which is developed from and attached by a point to the internal membrane of the acephalo-cyst. To give an idea of the number of the echino-cocci contained within an hydatid tumour, the author counted their number in an acephalo-cyst of about the size of a hazel-nut. In this small cyst he found forty clusters, several of which contained eighty individuals, and the entire number of echino-cocci was about one thousand. The animal is found in two states; namely, a contracted and an elongated state. In the latter there is perceived a circlet of hooklets at the cephalic extremity, with four suctorial processes; then follows a cyst-like body, or caudal portion, into which the cephalic portion is drawn in the contracted state, and at the caudal extremity is the peduncle. After giving a minute description of the animal, the author proceeds to describe the changes which take place in the creature after death, and gives a full account of the progressive stages of its development. The author considers the offices of the hooklets and suctorial processes to be involved in obscurity, the creature having neither mouth nor organs of progression. The identity of structure of the echino-coccus with the cysticercus he considers to be complete, and proposes for it the name of *cysticercus pedunculatus.*"

We cannot pass this subject by without a remark on the unexpected testimony which Mr. Wilson's researches afford of the independent animality of the acephalo-cyst. It has been a question of late how far the acephalo-cyst was to be regarded as an animal at all; but the existence of animals so highly organized as the echino-coccus, in its interior, affords sufficient proof of that being the case. The echino-coccus appears to be one of the commonest parasites of the animal organism, being present in every instance of hydatid, and therefore has strong claims to our attention.

At our request, Mr. Wilson has furnished us with several drawings, with explanations, illustrative of this curious animal. (*See plate, fig.* 2.) We think that his belief of the identity of the echino-coccus with the cysticercus is fully borne out, and the figures may be referred to as correct representations of the latter animal. The circle of hooklets surrounding the head of the cysticercus is met with, on a minute scale, in each echino-coccus: the precise number of these hooklets has hitherto been an undetermined question. Mr. Wilson states them to be thirty-four; namely, seventeen long and seventeen short.

BYE-LAWS, &c.
OF THE ROYAL COLLEGE OF VETERINARY SURGEONS.

SECTION I.

The Seal.

THE Common Seal of the ROYAL COLLEGE OF VETERINARY SURGEONS shall consist of the Armorial Bearings, Crest, and Motto of the College, as follows; viz.—

Arms:—Argent, a cross, engrailed gules between a horse's head erased in the first quarter; an arrow in bend, entwined by and piercing a serpent in the second; a horseshoe in the third, all proper: and a bull's head, erased sable in the fourth.

Crest:—On a wreath of the colours, a centaur proper, holding a shield argent, charged with an aloe, also proper, as the same are in the margin hereof more plainly depicted.

Motto:—"VIS UNITA FORTIOR."

CHAS. GEO. YOUNG, *Garter.*
J. HAWKER, *Clarenceux.*
FRANS. MARTIN, *Norroy.*

The Common Seal shall be in the custody of the President for the time being.

SECTION II.

Admission of Members.

1. No person entering to the Veterinary College of London or Edinburgh, or such other Veterinary School as may be sanctioned by the Charter on or after January 1, 1845, shall be admitted a Member, or be eligible for examination by the Board of the Royal College of Veterinary Surgeons, until he has attained the age of twenty-one years.

2. No person shall be admitted as a Member of the Royal College of Veterinary Surgeons after January 1, 1848, who has not served an apprenticeship of three years to some Member of the College in regular practice during the whole of that period.

3. A printed List of Members shall be published every three years, a copy of which shall be had, on application to the Secretary, on the remission of 1*s.* 6*d.*

4. Alterations taking place during each year shall be printed and published annually in a form corresponding with the triennial List, the charge for which shall be 6*d.*

5. Every Member, after his admission, shall subscribe his name in a book to be kept for that purpose, and shall receive a copy of the Bye-Laws, to which he will be bound to conform.

Section III.

Meetings of the College.

1. A General Meeting shall be called upon a requisition, signed by twenty Members of the College, being sent to the President, such meeting to take place within three weeks after the receipt thereof. The object for which such meeting is called shall be fully stated in the requisition.

Section IV.

Meetings of the Council.

1. A meeting of the Council shall be holden on the first Wednesday after every Quarter-day.

2. The President may at any time call a meeting of the Council, and shall do so upon a requisition in writing, signed by five of its Members: the nature of the business to be brought forward at such meeting being specifically stated in the notice.

3. The first business transacted at all meetings of the Council shall be for the Secretary to read the minutes of the preceding meeting, in order to their confirmation.

4. No Member of the Council shall vote upon a question relating to himself.

Section V.

The Board of Examiners.

1. The Council shall appoint twenty persons to constitute a Board of Examiners; Ten for England, and Ten for Scotland; the election to take place by Ballot.

2. Twelve of the above persons shall be Members of the Royal College of Veterinary Surgeons, and eight shall be Members of the Medical Profession.

3. The Professors and appointed Lecturers of any veterinary school sanctioned by the Charter, and the Principal Veterinary Surgeon to the Army, shall be, *ex officio*, members of the Board of Examiners; but they shall not receive any portion of the fees accruing from the examinations.

4. Any Veterinary Member of the Board of Examiners being

absent for more than four consecutive meetings, shall be reported at the next ensuing meeting of the Council, and, at their discretion, shall be liable to removal.

5. The President, or, in his absence, the Senior Vice-President, may, upon any emergency, direct a special meeting of the Board of Examiners. Double the amount of the usual Fee to be paid by each Candidate examined by such Board.

6. Every Member of the Board attending during the entire period of each meeting shall be entitled to the fee of Two Pounds for such attendance.

Section VI.

Examinations.

Each candidate prior to his examination must produce certificates to the following effect: viz.

1. Of having completed his twenty-first year.

2. On or after January 1, 1848, of having served an apprenticeship of not less than three years to some Member of the College in regular practice during the whole of that period.

3. Of having attended, during two sessional years, Lectures delivered at the Royal Veterinary College of London or Veterinary College of Edinburgh, or at such other veterinary school as may be sanctioned by the Charter:—

a. The Anatomy, Physiology, and Pathology of the Horse, and other Domesticated Animals.

b. Veterinary Medicine and Surgery.

c. Chemistry, Materia Medica, and Pharmacy.

4. Of having diligently dissected during his pupillage at the College.

5. Of being able to take off and put on a shoe, to drive the the nails skilfully, pare out a hoof, and search for its diseases; such Certificate to be available either from the Professor of the College, or from the Practitioner with whom he served his apprenticeship.

6. Of having conformed to the Rules and Regulations of either or any of such schools recognized by the Charter at which he has been a Student.

7. These Certificates, together with the Fee for examination, must be delivered to the Secretary at least fourteen days before

the examination takes place. To all candidates who shall have entered the Veterinary Colleges of London or Edinburgh, or such other veterinary school as may hereafter be recognised by the Charter, on or after January 1, 1845, the Fee shall be Five Guineas. From those entered previously, the present fees only will be required.

8. Every person entered at the Veterinary Colleges of London or Edinburgh, or such other veterinary school as may hereafter be recognised by the Charter, on or after June 1, 1845, shall, after having been examined and approved for the Diploma, pay a Fee of Five Guineas previous to his admission as a Member of the Royal College of Veterinary Surgeons.

9. A List of the successful Candidates shall be drawn out, and, having been signed by the Examiners present, shall be transmitted to the President, who shall upon the receipt thereof, and the payment of the Admission Fee, grant the Diploma of the College to each individual.

10. That the signatures of the Examiners present be affixed to the Diploma, which shall be in the form following; viz.

"*Know all men by these presents, that the Board of Examiners appointed by the Council of the Royal College of Veterinary Surgeons having deliberately examined Mr.* , *and having found him to be fit and capable to practise the Art and Science of Veterinary Medicine and Surgery, I, the President of the Royal College of Veterinary Surgeons, hereby admit him a Member of the College, and authorize him to practise the said Art and Science accordingly.*

In witness whereof I have subscribed my name, and have caused the Seal of the College to be affixed hereunto, this day of , in the Year of our Lord One Thousand Eight Hundred and

_____ *President.*

Member _____

Member _____

} *Examiners.*

Section VII.

Misconduct of Members.

1. If at any time a Member shall violate any Bye-Law of the College, or be guilty of any fraud, false statement, or imposition, in any matter required by the College, after full and impartial investigation, his admission shall be forthwith cancelled.

Section VIII.

Property.

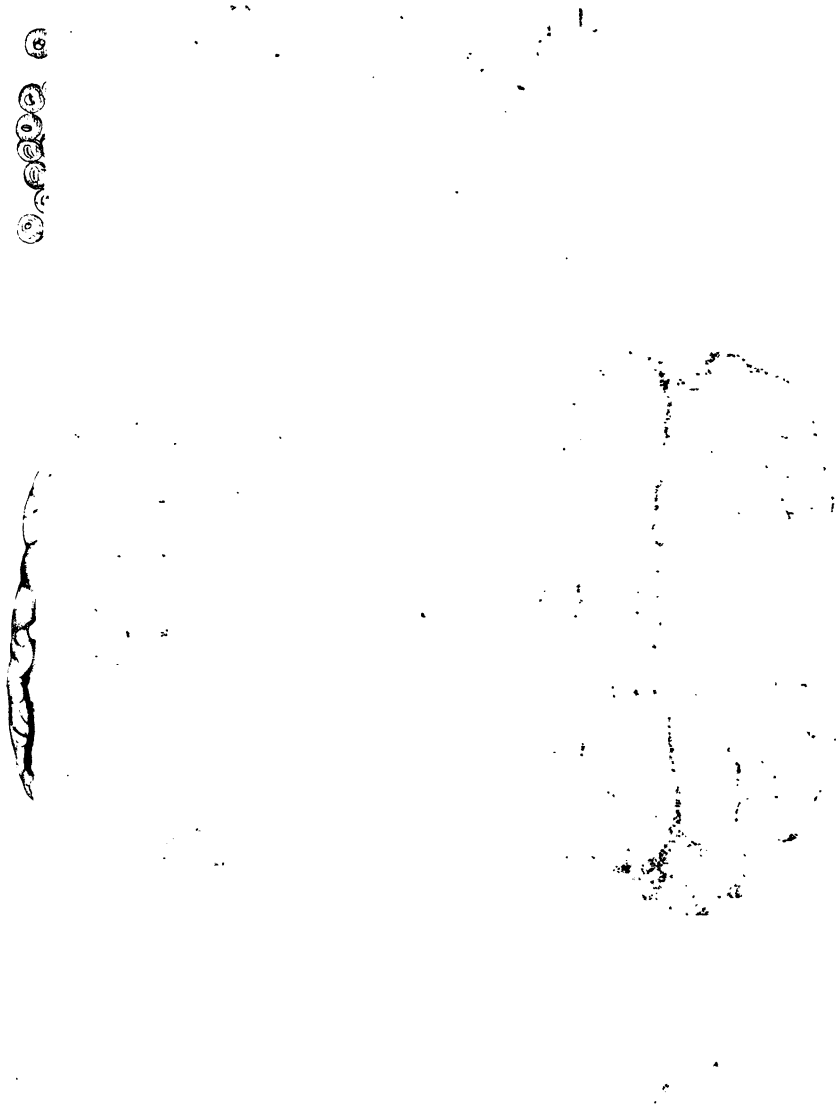
I. No payments of money due from the Royal College of Veterinary Surgeons shall be made except by order of the Council, and only by cheques, such cheques to be signed by the President of such Council Meeting, and countersigned by two of the Members of the Council then present.

2. All surplus monies belonging to the Royal College of Veterinary Surgeons, except what is necessary to be in the hands of the bankers for current expences, shall be vested, from time to time, in the Three per Cent. Consols of Great Britain, or other Government securities, in the names of Trustees appointed by the Council.

Note by the Editors.

We had written, and anticipated being able to introduce, "Reviews and Notices" of books presented to the library. These, however, having been excluded from the present number by other matter, will obtain a place in the succeeding one, it being a division, in common with some others, which we intend making in the Journal.

Fig. 2.



Era

EXPLANATION OF PLATE I.

Fig. 1.—The appearance of the brain on which an abscess had formed. The case is described at page 91.

a.—Shews the external aspect of the brain, with the situation of the abscess.

b.—A section of this organ; the purulent matter having insinuated itself between the convolutions of the brain, and caused their displacement with absorption of a portion of the cerebral substance.

Fig. 2.—Structure of the echino-coccus; the parasite of the acephalo-cyst, described by Mr. Erasmus Wilson. See page 98.

a.—A cluster of echino-cocci contained in their proper membrane, the membrane being connected by means of a peduncle to the internal membrane of the acephalo-cyst.

b.—A group of echino-cocci set at liberty by the rupture of their proper membrane, and of the peduncles by which they are connected to that membrane. Both the preceding figures are magnified 38 times.

c.—An echino-coccus in its contracted state, magnified 155 times. The figure is viewed by transmitted light, so that the internal organization of the animal is apparent. At the upper end of the figure is the aperture left by the withdrawal of the head; the line leading downwards from this aperture indicates the course taken by the head during its retraction. The oval-shaped body near the bottom of the figure is the head surmounted by its hooklets. Above the head two of the suctorial processes are seen; and at its lower end the remains of the peduncle.

d.—The echino-coccus in its elongated state. The head is surmounted by a circle of hooklets; below the head three suctorial processes are seen, and then follows the body or caudal portion of the animal. Near the lower part of the figure is seen the attachment of the retractor muscle of the head. This figure is magnified 155 times.

e.—The circle of hooklets viewed upon its under surface; the circle is composed of thirty-four hooks, seventeen long and seventeen short. This figure is magnified 456 times.

f. f.—Separate hooklets magnified 456 times. Each hooklet has a pointed extremity, a blunt extremity, and a base, the latter being equal to about half the length of the entire hooklet.

Fig. 3.—Structure of the cerebellum described at page 94. A portion being subjected to examination by Mr. Erasmus Wilson, presented the appearances shewn in the following figures:—

a.—A part of the section of the tumour magnified thirty-eight times. In this examination the tumour had the appearance of being composed of small polygonal masses loosely connected together; some of them being hollow in their interior, or filled with a softer substance than that which forms the exterior.

b.—A portion of the same tumour, seen with the same magnifying power, but dried. In this state the section has a loose, spongy, or foam-like appearance.

c.—A portion of the tumour magnified 310 times, shewing its minute structure. With this magnifying power, it is seen to be composed of cells varying in size from $\frac{1}{2000}$ to $\frac{1}{1400}$ of an inch in diameter, containing in their interior more or less granular matter and one or more nuclei.

d.—Separate cells magnified to the same amount as in the preceding figure.

e.—A small elongated body, of which there were several interspersed among the cells, apparently a portion of a nerve tubercle.

THE

VETERINARY RECORD, &c.

VOL. I.] APRIL 1845. [No. 2.

AN ACCOUNT OF A SUPPOSED OSSIFIED BRAIN OF AN OX IN THE VETERINARY MUSEUM OF MILAN:

READ AT THE SCIENTIFIC ASSEMBLY IN TURIN, BY DR. LOUIS PATELLANI.

Translated from the Italian, by Mr. J. S. Gamgee.

Fig. 1.

Fig. 2.

Fig. 1.—Represents a section of the cranial tumour.
Fig. 2.—Shews its general appearance externally.

ESSAY, &c.

It being but a short time since that my sovereign, Ferdinand I, honoured me with the title of Professor of Zootomy and Zoophysiology in the Royal University of Pavia, I am sorry that I cannot present myself before this learned body except as a hearer, And I would not have done even this if the invitation which I received from you, gentlemen, had not made me conclude that my absence would have cost me the loss of one of the most powerful means of instruction. Not being able to do more, I beg that you, my honoured colleagues, will kindly accept the few remarks that I have hastily put together as a proof of the high esteem in which you are held by the learned world, of which those beings cannot form a part who, envying the fame of others, see nothing but as through a mist even in the clearest day.

For a long time the most celebrated men have laboured to investigate the nature of the brain and nervous system, examining attentively every peculiarity which may be presented; and in this Piedmontese state there still exist anatomists and physiologists of European fame who have written admirable essays on the above subject.

The Veterinary College of Milan, established in 1807, under the direction of Professor Pozzi, and re-organized in 1834, so as to leave but little to be wished for to secure its prosperity, contains in its museum an ossified brain.

This museum owes its origin to the indefatigable zeal of Professor John Leroy, whose example has been followed by his successors. Of its numerous and valuable specimens in morbid anatomy, &c., unfortunately no historic description exists. The writer only became possessed of a catalogue a short time since, just commenced by Professor Leroy, of what is contained in the museum, in which the following account appears:—

"No. 82, a very hard piece of bone, large, heavy, and of a tooth-like substance, found in the cerebral cavity of an ox, and assuming a form similar to the brain. The animal in which it was found enjoyed apparently perfect health. This specimen is well worthy of notice, because it furnishes a very interesting physiological question, and also on account of the rarity of the

circumstance, there being only four cases of this kind on record in Europe." Being in possession of this information, I thought it my duty to make further inquiries of those who had been the longest in this establishment.

Angelo Bagnalasta, clinical lecturer, and one of the best-known veterinarians here, is a pupil of Professor Leroy, and affirms that he heard the following account of this morbid mass:—

"A butcher in Bologna was fattening an ox, which in a short time became of considerable size: having killed him, he found the above-named brain in the cerebral cavity."

This rare object was given to Professor Moreschi, who sent it to Prince Eugene Beauharnois, Viceroy of Italy, who by means of Landoir, veterinarian at court, presented it to the Veterinary College of Milan.

Another veterinarian, Baldassarre Volpi, M. Leroy's pupil, and assistant to Professor Bagnalasta, asserts that he saw the brain enveloped in its proper membranes, and that nothing but a saw was able to divide it*.

Without laying any great stress on the above information, there being no precise history of the brain, and the skull in which it was found not existing, in short, nothing remaining but the object itself and Professor Leroy's observations, I have thought proper to make these latter the basis of my brief considerations, which I now submit to the judgment of this congress.

Professor Leroy's account offers for decision the three following questions:—

First: Whether the brain in question be that of an ox?

Second: If it be without doubt composed of cerebral substance?

Third: If the individual who possessed it was always in perfect health?

In order to give an adequate answer to the first question, I think the best way is to compare the dimensions of the brain in question with those of the cerebral cavity of an ox; yet, before I do

* The celebrated Professor Tiedmann, to whom I mentioned the fact while in Turin, was not astonished at hearing that the animal lived in perfect health with such a brain. He said that his medulla oblongata must have been very much developed, and likewise the nerves corresponding to the senses. The same opinion was expressed by Mr. President Tommasin.

so, I have thought it desirable to present a sketch of the ossified brain [*see woodcut*], so that every one may form correct ideas respecting it: and whoever visits the veterinary establishment at Milan may, at his leisure, attentively examine it. Its form is that of an irregular cone with a broken apex. Of the same form may be considered four surfaces; the one anterior, the other posterior, besides two others which are lateral; and two extremities, one of which is superior, the other inferior, resembling the brain placed in the cerebral cavity in which it was found. The anterior surface is spheroidal, with prominences and very marked excavations: the posterior is concave, with small depressions; the two lateral surfaces are convex, but unequal; the left one is continuous until it reaches the inferior part, where it unites itself to the anterior surface, and there it exhibits a part wanting, which has been sawn off. The right lateral surface is mostly irregular. The internal surfaces of the two halves are white, variegated with streaks of an ash-colour, which does not correspond with the dirty yellow of all the external surface. On all these external surfaces are visible many concentric laminæ; and towards the edge of the anterior surface, which unites itself with the superior extremity, are three slits, of ten, fifteen, and twenty millimetres in length, commencing at the base of the superior extremity, where it unites itself externally with the lateral and anterior surfaces. These narrow excavations indicate a continual division. Besides the described colour, the internal face of the left half was artificially polished, so as to shew an ivory brightness, like the enamel of teeth. In this bright surface are some small cracks in the middle, which may be attributed to the action of external agents, but which, also, lead one to suspect the division of the semi-concentrical striæ. On various parts of the external surface, especially in the right half, are visible many small membranous laminæ, and some striæ of alveolar substance.

Taking into consideration the various diameters, I have obtained,

First: The diameter, taken vertically from one extremity to the other, is thirty-seven centimetres.

Second: The horizontal one, which follows the line uniting the cerebrum and cerebellum, is thirty-six centimetres.

Third: The transversal diameter, taken at the centre of all the surfaces, is twenty-nine centimetres.

The sawn surface of the right half is twelve centimetres in length and eighty-five millimetres in width. And, drawing the comparison between the above-named dimensions and those of the cerebral cavity of an ox about eight years old, the cranium cut longitudinally from the horns to the nasal bones, the following are the results:—

First: That the vertical diameter, taken from the great opening of the supreme bone to the olfactory cavities, is thirty-three centimetres.

Second: That the horizontal diameter, taken in cutting the olfactory cavities and the centre of the ethmoid bone to return there, passing over the petrous portion of the temporal bone and under the apophysis, measures twenty-nine centimetres.

Third: That the transversal diameter, taken at the junction of the sphenoid with the cuneiform apophysis of the supreme bone, passing laterally on the semicircular apophysis of the petrous portion, traversing the temporal and the frontal bones there, where both externally and below is the origin of the horns, is equal to thirty centimetres.

The supero-inferior dimensions, taken from the opening of the medulla oblongata, where it unites itself with the cuneiform apophysis to the condyloids, near the condyloid openings at the centre of the crista ethmoidalis, is equal to twelve centimetres, and corresponds to the dimensions in length.

The antero-posterior dimension, taken from the centre of the frontal bone at the junction of the cuneiform apophysis with the sphenoid, is ninety-five millimetres, and corresponds with the dimensions of the width.

From this comparison one may conclude that, although some dimensions of the ossified brain exceed those of the cerebral cavity of which I have made use, yet, on the whole, as oxen have brains of a diversified size, it may be supposed that the ossified brain in question belonged to an ox.

To convince myself more effectually that the above brain was that of an ox, I drew the comparison between it and a sound one, still keeping in remembrance the diameters of the cavity, and also of the specific weight of both brains.

The ox from which I extracted the latter sound brain was about twelve years old, and was slaughtered by means of blows on his

cranium; on which account the os supremum was divided downwards to the condyloid apophysis, together with the wedge-like apophysis, and also at the parietal bones, in the insertion of the temporals and frontals. In consequence of this fracture a portion of the cerebellum bulged out of its lacerated membrane, and the medulla oblongata was contused and divided in the right half. Notwithstanding, the cranium being sawn in an oblique direction from the base of the horns to the arch over the eyelid, I was able to open the cavity conveniently and extricate the brain, which afforded the following dimensions:—

First: The vertical diameter, taken ideally (a part of the cerebellum missing), is thirty-eight centimetres.

Second: The horizontal diameter is thirty-five centimetres.

Third: The transversal diameter is twenty-nine centimetres.

The brain being cut in half, it was fourteen centimetres in length and eighty millimetres in width.

The diameter of the cavity lengthways was thirty-nine centimetres; the one in width was thirty-two centimetres.

The sound brain, being placed on the scale, weighed fifteen ounces (Austrian weight): on performing the same experiment on the ossified brain, I found it equal to twenty-nine ounces three-quarters (Austrian). The best half of the latter brain weighed fifteen ounces.

The various weights of the ox's brain, in the different stages of life in which it is usually slaughtered, considered from eighteen months to four years old, are as follow:—

The brain of a calf, from one to six months old, weighs from eight to twelve ounces (Milanese weight); that of an ox, from six months to three years old, weighs from twelve to fifteen ounces of the same weight; that of an ox from three to twelve years old weighs from fifteen to twenty ounces of the same weight, considering it one of the largest breed of oxen.

Although the dimensions that I have obtained are not quite correct, as I have no proper craniometer and encephalometer, yet, from what I have said, one may conclude that the ossified brain in question may be that of a bullock.

II.—In order to give an adequate answer to the second question, namely, "Whether the ossified brain be formed of cerebral

substance?" I have deemed it proper to investigate the specimen by its physical zootomic characters, microscopical observations, and, also, chemical analysis, and compare these with the sound brain just extracted from the cranium.

The ossified brain is, externally, of a dirty-white colour, approaching to yellow; inside, it is of a yellowish ash-colour, which varies in its intensity in the various deep and superficial striæ; for which reasons one may conclude that the ossified brain in question is formed of two substances, differing in colour, as, in fact, the cortical and medullary substances present themselves in the brain. I shall, however, omit naming the different colours of the several cerebral laminæ. The smell of the dust obtained in sawing through the brain is like that of horn. Its taste is unpleasantly sweet. The ossified brain is much heavier than the sound one. The tissue is compact, laminated, and striated. It is easily filed. Its form, if not exactly like that of a bullock's brain, closely resembles it. In it one may see the two cerebral hemispheres, and the divisions between the cerebrum and cerebellum.

The difference between the superior and inferior portion of the lobes is observable. As it regards the cerebral circumvolutions, if in the right half they be irregular, such they do not seem to be in the left, where is preserved the roundness and gradual declivity in all directions. If the objects on the different surfaces are to be considered separately, some of them are to be seen which have retained their primitive form.

In the anterior surface going from the division of the cerebellum to the cerebrum, is observable the first transversal circumvolution more voluminous than in the left half: it loses itself subsequently, but in the right half it unites itself with the longitudinal medium which limits the dividing line of the hemispheres. Among the many circumvolutions, the third in the left half is worthy of notice; but this one soon vanishes among the equal protuberance in the remainder of the superior portion of the left lobe, until one finds the same surface.

In the posterior surface is observable the portion of the cerebellum separated in form from the one of the brain. In this place is wanting the pons varolii and the medulla oblongata; and there

is only to be seen a small protuberance, which proceeds from the edge of the brain, and reaches the right lobe of the cerebellum, which it partly covers; but on this organ the dividing vermicular prominence is not visible, therefore a precise form cannot be given to it, because in this place is one of the slits above-mentioned. The existence of one of the divisions of the brain cannot be imagined, except in the left half, and the square form of the optic nerves is hardly discernible on this part likewise, the brain here not being entire, on account of a part having been sawn off. The olfactory nerves mix themselves in the cerebral circumvolutions. The membranous tissue folds itself in places in the various parts of the external surface, as if the brain were involved in its true membrane.

In the sound brain the convolutions are more regular and in greater number above and in the centre, than below, laterally or behind. They are not very deep, and, dividing the brain in the direction of the ventricles, which in bullocks are narrow and placed towards the anterior lobes, is to be observed a substance like marrow, surrounded by a limited substance of a yellowish ash colour. In the posterior surface the parts are distinct and well marked, commencing from the medulla oblongata and going downwards. The ossified brain being placed in this cranial cavity, although it did not perfectly fill it, yet one could see that it had the necessary form to occupy a similar one rather less capacious; a thing easily understood, knowing that the bones of the cranium follow the development of the cerebral substance.

To these observations I have added those of the microscopical and chemical investigation; and, this establishment not being as yet in possession of the necessary instruments, I was kindly presented with them by Professors Balsamo, Crivelli, and Dr. Polli, Assistant Lecturer of Technical Chemistry.

With Amici's microscope I examined,—

1st. The powder obtained in sawing the brain, which presented the appearance of a laminated cellular tissue, of an irregular figure.

2d. A splint composed of a substance similar to the cerebellum, which to the naked eye did not exhibit any tissue, did not present by the aid of the microscope any thing but spots more or less dense, in which could be seen some small scales.

3d. A small piece of tooth-like substance, similar to the cerebellum, also did not shew any thing but spots more or less intense, with small scales.

4th. Likewise in the powder of this small piece nothing particular was to be seen.

5th. In the powder obtained from the external surface of the splint was visible a cellular filamentous tissue.

6th. A small portion, which I thought was membranous, taken from a spot on the external surface near the right posterior lobe, presented a tubulous mass.

7th. Another small portion of the same, suspended in water, presented some filaments platted together in various manners with spherical bodies, and with a higher power, small tubes were visible and minute spherical bodies.

8th. The powder of the same diffused in water likewise presented small tubes and little bodies like bladders.

9th. Another portion of membranous substance taken from the anterior left lobe shewed small tubes with minute ramifications like spherical vases and small bodies, which were seen to be opaque by the reflecting mirror, and of a transparent yellowish colour when the mirror was put far off.

Having examined the bone powder with Amici's microscope, and various parts of the brain just taken from the skull of an ox, I obtained,—

First; From the powder scraped from the naturally formed skull of an ox, tried both when dry and in water, the scaly tissue.

Second; In a portion of a substance like marrow, small spherical bodies; with a higher power, the same with filaments; and with a still higher power, the same with more developed filaments.

Third; In a portion of skinny or membranous substance, very small spherical bodies.

Fourth; In a portion of pia mater, united granules in bands.

Fifth; In the powder of the sound brain dried in the oven, the cellular tissue not very distinct, with tubes of small round and oblong bodies of a yellowish colour.

Respecting the analysis kindly made by Dr. Polli, it appears that the brain in question is composed of phosphate and carbonate of lime, of phosphate of magnesia and chlorure of soda. Of the first there is a large quantity, of the second moderate, and the last two

are merely traceable. He doubts whether there exists any fluorure of lime. With these is found animal matter in a small quantity, but less than half of that which is usually contained in bones.

Considering the above analysis exact, and having compared it with the best analysis, which admits in the bullock's brain muriate of soda, the sulphates and phosphates of lime, ammonia, and magnesia, the chlorure of soda, and the phosphate and carbonate of lime, a great analogy appears between them*.

We must, therefore, conclude that, considering attentively the physical zootomic characters, with the results of the microscopic observations and the chemical analysis, we may safely assert that the ossified brain contained true cerebral substance, which of necessity diminished in consequence of the enormous increase of dentitious or tooth-like substance.

III.—The point which offers a physiological question, and one very difficult to answer, is that based on Professor Leroy's inquiry, Whether an animal with such a brain could live in perfect health? According to the Professor's opinion, it seems as if we are obliged to maintain that the vital actions of this animal corresponded exactly to the conditions of life, and that all the organs regularly reacted with the agents indispensable to existence. Yet, as there is another mode of explaining health which can be made use of in the present case, so each one may interpret it as he pleases. Following in this particular the principles of one of the most renowned schools of Germany, although expressed in different words by one of the most celebrated Italian physiologists, I distinguish in life three manifestations, which present themselves in the phenomena of sensibility, movement, and vegetation; to which correspond, as fundamental forms, the nervous mass, the muscular fibre, and the cellular tissue, over which preside the cerebral and spinal nerves, and those of the great sympathetic. The

* Professor John, besides the above-named principles, has found in the cerebral substance of a calf phosphate of iron and silex.

Lassaigne and Lauret maintain that the horse's brain contains water, osmazome, albumen, chloride of sodium, sub-carbonate of soda, phosphate and carbonate of lime, like that of man. Vauquelin found in the nervous substance, water, a white thick matter and some red matter, osmazome, albumen, phosphorus united to the two thick substances, sulphur, phosphate of potash, and phosphate of lime and magnesia.

most important object which offers itself to our consideration respecting the nervous mass, seems to me to be that which demonstrates whether an organ modified in its organization may at any time manifest its natural phenomena? Leaving this question for the present, I shall examine the facts necessary to explain this case, which is one certainly very rarely met with. Every one present knows, that there are many authors, whom I do not deem it necessary to mention, who, studying the various phenomena attributed to the nervous system, have had a wish to discover its primitive origin. The existence, seat, and functions of the soul have long been a subject of discussion, a problem which I hold it is difficult to solve. Having made a distinction between the spirit and the soul, the brain has been considered the seat of the latter; but the malformed or altered structure of the brain in idiots and fools gave rise to an inquiry as to which place in these the soul occupied; and after all the peculiarities of the encephali had been examined, arose the acephali, who having no brain, and nerves extremely developed, presented new matter for physiological inquiry. Then were more profoundly studied the medulla oblongata and the medulla spinalis, and the great intercostal nerve: especial nerves were also assigned to sense, motion, and to the vegetative process; and it was concluded that the body could be animated without the presence of the brain, and that the cerebrum was either the origin or the termination of the nervous system.

What surprise will then be created in the minds of you, gentlemen, who are here assembled, by an ossified brain, and particularly in him who knows the strength of the nervous mass in the invertebrata, the power of the medulla oblongata, and of the nervous prolongations in the vertebrated class of animals, with the power that animal magnetism may have?

If we are allowed to admit, what facts prove, that not unfrequently a transposition of the senses takes place, and that the organs are developed and are sensible without an encephalon, so much more readily we can admit their existence with this modification. Is it impossible to explain the formation of this brain or one of a similar nature? Every physiologist knows that the cellular tissue is one of the fundamental forms of the organism, as well as of the bony system, and that in these latter predominate lime and other earthy matters united with phosphoric acid: now, if it be true that in the blood are traceable all the materials of the

organic tissues, and that some investigators have been able to find there even those of the nerves and cerebrum; and if it be true that a physiological phlogosis exists, why, supposing a modification of the vegetative process of the nervous mass, differing as among the other named fundamental forms, may we not also adopt the opinion of cerebral ossification? Could it not be formed during the progressive development of the organized body, or may it not take its origin with the work of conception, accepting it as a phlogistic and physiological process?

If we refer to comparative pathological anatomy, facts are to be found which so much the more confirm this enunciated opinion. Every one knows that, in man and in domestic animals, calcareous concretions form in the intestinal tube, and in the secreting glands. In the annals of our science are to be found cases of ossification of the larynx, of the valves of the heart, and of the heart itself; of the pulmonary artery, of the left auricle, and of the aorta; of the spleen and uterus, and also osseous tumours met with in the Fallopian tubes. We have likewise read histories of cases of tumours on the nerves, of softenings, hardenings, and hypertrophy of the brain, and of hydrocephalus; of fragments of bone one inch in length being found in the brain, and tumours of the size of a hen's egg, as well as the annular tubercle being of the density of iron, and the plexus choroides filled with earthy matter.

From these facts, it clearly results that oftentimes in the animal organism, there is a large amount of calcareous phosphate and other earthy principles, which alter the form and the mechanical, chemical, or dynamical forces of the tissues and external agents, and which are thrown directly on one or the other of most important viscera. But does it follow of necessity, in consequence of this modification, that the functions of the viscera must be suspended or altogether altered? I very much doubt it. Who can tell the many resources which Nature has reserved to herself? If there be examples in which, with the alteration of the tissue, the viscera have shewed unnatural phenomena, it is also true that there are many examples proving the contrary. Meanwhile there exist in Europe some other ossified brains, as Professor Leroy says, although he does not assert where. One is in the possession of a butcher at Vienna, who found it in a fatted bullock, although it seems to be but a part of that organ. Our domestic animals, in

the most important viscera of which are frequently found concretions of all sorts, do not for many years manifest any extraordinary symptoms. In the anatomical and pathological Museum of the University of Pavia, a preparation exists which shews the contrary position of the viscera of the abdomen, being placed from right to left, without the individual to which they belonged having given signs of any perturbation. A man, in whom the spleen was found ossified, was also in the enjoyment of perfect health. Cases of cancer in the encephalon, and of congenital hydrocephalus, attended by simple epilepsy, have also been met with; and after having experienced an epileptic attack, the individual is said to have again possessed his natural faculties.

From what has been advanced, I think I may affirm that the ossified brain belonged to an ox in perfect health.

Can the cerebral ossification be an obstacle to the desired investigations in phrenology? I think not; for I am well persuaded that, if the custom of interring dead bodies without examination were not so generally adopted as it is, among the innumerable cases of cretinism, brains would be found much more frequently ossified than is at present suspected.

TUESDAY, DECEMBER 3, 1844.

The TREASURER in the Chair.

On the table the remainder of the morbid specimens received during the vacation were placed, and the following communications read.

A CASE OF CONGENITAL HYDROCEPHALUS IN A FOAL.

By Mr. C. DICKENS.

Dear Sir, *Kimbolton, May 27,* 1844.

EARLY this morning I was summoned in haste to a cart-mare, the property of a farmer three miles from this place. I was informed that, up to a week since, the abdomen was very much enlarged, and she had every appearance of foaling shortly; but for the last two days she has looked thin, and the mammary glands have diminished.

This morning she was very restless, being up and down constantly, and groaning, but did not evince any parturient pains.

Upon examination I found the os uteri dilated, and a breech presentation with the hind legs extending forwards. I administered ʒiij of the ergot of rye in ale immediately, and left her for twenty minutes; when the pains became strong, and, after two hours of perseverance and hard labour, we extracted the fœtus, the head of which I send you just as removed, a quantity of fluid only having escaped from the cerebral cavity; having foregone my own desire for inspection, rather than displace any part.

Remarks.—The mare was found about three months ago cast. I am of opinion that the fœtus thus got displaced, and the depression in the skull was formed by the hind feet resting upon the head and forcing the soft parts forward. I once witnessed a similar case in a lamb, which was alive when I first saw it.

I am, your's, &c.

Mr. Simonds.—The cranium was enlarged to three times its natural size, and the face considerably shortened. It is well known that children are liable to accumulations of water both within the ventricles and between the meninges of the brain; but whether, in this case, the fluid was deposited in either or both of these parts, from the state in which the specimen was received I was not able to ascertain. My opinion, however, is, that it was a well-marked case of congenital hydrocephalus, and I am inclined to think the membranes were most involved. Little can be said in explanation of the nature and causes of this disease: and even when watched from its commencement to its termination, its pathology is very obscure, and, when occurring before birth, this must of necessity be even more so.

Supposing the presentation to have been what is called a "breech-presentation," each pain, or contraction of the uterus, would naturally tend to bring the hocks into the position in which they were found. The case, therefore, in this particular, presents no novel feature; but, connected with the delivery of the patient, there is a circumstance deserving of notice. Had the presentation been a natural one, the head, from its great size, must have become impacted in the vagina; and thus it would have been im-

possible to have completed the delivery without having recourse to an operation. But being a breech-presentation, the passage of the hinder parts served to dilate the vagina; and Mr. Dickens was, consequently, able to remove the fœtus entire, notwithstanding the increased size of the cranium.

Inspection of the skull presented the bones thin, soft, and in many parts united only by membrane, the enlargement being very considerable, from the accumulation of the fluid.

A Case of Diseased Heart in a Bull.

By Mr. Carlisle.

Dear Sir, *Wigton, June* 6, 1844.

The heart sent was taken from a valuable bull, the property of John Watson, Esq., Bolton-park. My motive for sending it was more particularly to have your opinion as to the correctness of my diagnosis, rather than from the singularity of the disease. I will first state the particulars of the case, and the treatment adopted by one of the old school.

On the 17th of April, the animal was observed to be unwell, and, as near as I could ascertain, the following symptoms presented themselves:—disinclination for food and motion—slight distention of the rumen—respiration accelerated—ears drooping, and other febrile indications—fæces natural. At this time Mr. ——, chemist and druggist, who also assumes the title of veterinary surgeon, was sent for. He repeatedly attempted to withdraw blood, but was unsuccessful; when he declared it to be impossible to bleed him, at the same time telling the owner it was a matter of little consequence, as he could give the animal medicine that would soon cure him. Accordingly the following was administered:—℞ Aloes Barb. ℥j, sulph. magnes. ℥xx, pulv. zingib. ℥ij. The next day no amendment was perceptible, although the animal was purging violently; notwithstanding which, towards night another pound of salts and ℥iv more of aloes were given.

On the 19th, the patient was no better. I was then requested to attend with Mr.——, but declined: I was, consequently, summoned alone. The animal was then standing—his ears drooping—eyes

dull and suffused with tears—conjunctival membrane very vascular, and having a yellow tinge—belly tympanitic—fæces in a fluid state and very offensive: when made to move, he had every appearance of a horse labouring under laminitis—pulse 100, full and bounding, with irregular intervals of vibrating jerks—accelerated breathing—great tenderness on pressure applied to the left side behind the elbow—the heart's action conveyed a singular tinkling noise, and at intervals the whole body was convulsed with spasmodic twitchings.

Treatment.—Venesection to the extent of 16lbs.—inserted setons in the pectoral region—gave sedative medicines combined with demulcents—blistered the sides, and ordered plenty of flour-gruel to be given two or three times a-day.

20*th.*—The above symptoms more intense, and the fore legs much abducted. Pulse 130, and of the same character—countenance extremely dejected when disturbed—palpitation of the heart audible, and the spasmodic twitchings more confined to the muscles of the face—fæces quite fluid, and when voided accompanied with much mucus. Blisters not yet acted. Blood-letting was had recourse to from the abdominal vein until indications of syncope took place; after which I repeated the sedative agents in increased quantities.

21*st.*—General symptoms much the same, and respiration at intervals very laborious. The owner now becoming alarmed from my unfavourable prognosis, wished to send for a practitioner who formerly had attended his stock, to which I offered no objection.

Mr. R——, after a lengthened and careful examination, differed with me as to the seat of the disease. It is, he said, distention of the digestive organs combined with congestion, and the animal is quite free from all thoracic disease. Accordingly he wrote a prescription, which consisted of linseed oil and hydrocyanic acid to be given every four hours. I proposed that Mr. R—— should remain all night to watch its effects, and requested that he would not leave before I arrived in the morning, for I prognosticated a post-mortem examination then, when the true nature of the malady would be made manifest. Three doses of the medicine were administered, and they were about to give the fourth, when the animal fell suddenly and died.

Post-mortem appearances.—Peritoneum free from disease—stomach and bowels very much distended with flatus, and containing but little ingesta—mucous membrane of the small intestines presented a livid appearance throughout—the cuticular covering of the rumen came away as if from maceration, but the parts beneath were free from inflammation. Nothing more worthy of notice existed in the abdomen. On laying open the thorax, about two quarts of serum escaped from both sides of the lungs, which were much diseased—pleuræ pulmonalis et costalis on the left side highly inflamed—the pericardium, on its external and internal surface, was nearly in a state of gangrene. The heart you received, and will be much better able to judge of the nature of the morbid change which had taken place in it than I can describe. I feel convinced that you will agree with me, that I was right in the views I at first took of the disease.

I am, &c.

Mr. Simonds.—In the morbid specimen, the history of which has just been read, the pericardium was in a state bordering on gangrene, and the heart itself softened in structure, and covered with flocculi of lymph. The peculiar vibrating or jerking pulse, the pain on pressure being applied to the left side, and the singularity of the animal's gait, all bespoke the heart being the seat of the disease.

In the latter stages the digestive organs were deranged. This circumstance is, however, of little importance connected with the case, and, probably, they were earlier involved, in consequence of the large doses of purgative medicine which had been administered. I therefore quite concur with the view taken by Mr. Carlisle of the disease, and believe the treatment he adopted was the best that could have been had recourse to.

Mammary Tumours removed from the Flanks of a Heifer.

By Mr. T. W. Mayer.

My dear Sir, *Newcastle, Oct.* 3, 1844.

I have this day forwarded by railway two tumours, which I removed yesterday from the sides of a two-year old heifer. The larger one weighed seven pounds, the smaller two pounds and a half.

They have been gradually increasing in size ever since the animal was a calf; but latterly they have developed themselves so rapidly, that the owner wished to have them removed. The animal was first seen by me about three days ago, and appeared in perfect health. I communicated to the owner the risk that attended the operation, and gave it as my opinion that the growths were constitutional, an opinion which I think, on examination, you will coincide with.

On opening the tumours, a large quantity of thick cream-coloured pus made its escape, with large masses of cheese-like substance floating in it. The sac itself is lined with what seems to be a calcareous deposit, and which is continued into the substance of the sac itself. The tumours were situated on either side of the flank, immediately underneath the common integuments, being loosely attached to the tendinous expansion of the muscles beneath.

I will take care to communicate the result of this case to you.

Believe me to remain,

Your's, very sincerely.

Mr. Morton.—I have, since the receipt of this letter, heard from Mr. Mayer that the case is apparently doing well.

Mr. Simonds remarked upon the length of time which some tumours remain imbedded in the cellular tissue, and upon the rapidity with which others hurry on to a fatal termination: and observed that, when these growths were of a malignant nature, the constitution was generally involved, while those of a benign character were strictly local, and therefore the fittest for operation. "Ruminants," he proceeded to say, "were very liable to the formation of tumours about the head and neck. These, however, were situated upon the flank, and Mr. Mayer prudently resolved to remove them. I am not aware that these morbid growths in cattle are ever absorbed by the use of iodine, unless in the earlier stages of their growth; but where, as in the present instance, the tumour had evidently been of some duration, I am not of opinion that the employment of iodine would have been attended with any benefit. Mr. Mayer states that he observed an appearance of calcareous matter lining the cyst, and the sensation imparted to the finger when passed over the surface would naturally lead to this inference; the correctness of which, however, on closer examination, I

am inclined to doubt. I have here laid open a portion of the tumour, and it presents a beautiful variegated surface, not very unlike to the arbor vitæ of the cerebellum. It consists of a number of small granules of various forms and sizes, contained in a dense outer cyst, and, independent of the common cyst, each granule appears to possess its own proper covering; and these coverings being of a lighter colour than the central substance, give to the cut surface that arborescent appearance to which I have alluded. In the centre of some of the granules only a very minute quantity of pus can be discerned; in others, a larger quantity is perceived; while a few appear to have had their proper sacs absorbed, and to have mingled their contents, thus forming large internal cavities within the substance of the tumour. There can be no reason to suppose the purulent fluid, thus inclosed and isolated, would have become absorbed; and had not the tumour been removed, we may conjecture its augmentation would ultimately have involved other parts, and caused great constitutional disturbance. I am inclined to think that the sensation imparted to the finger, indicating the existence of calcareous matter, is caused by portions of the hard scirrhous capsules being attached to the outer cyst, and I consider the morbid parts before me as interesting specimens of those tumours termed *mammary*.

"It is the general opinion that formations of this character are intermediate in their nature between the malignant and the benign. They may, however, occasionally take on the cancerous form, or they may not; and it is probable that the constitution of the patient regulates their development. Yet, under such doubtful circumstances, it is certainly the best practice to operate at once, rather than incur the delay and hazard which would attend the use of iodine or its compounds. The magnitude of the growths, and the importance of the region in which they were placed, rendered the operation, I have no doubt, a subject of serious consideration to the operator, for in cases of this kind the possibility of hæmorrhage or collapse must always render the result dubious; but I am happy to hear the case has terminated favourably."

A somewhat desultory conversation now ensued.

An inquiry from *Mr. Cartwright*, as to the probability of iodine affecting glandular structures besides the parts diseased, drew from *Mr. Morton* an explanation that iodine has a specific tendency to

remove abnormal growths, after which healthy structures are attacked, but its use to such an extent would argue a want of discernment in the practitioner. Mr. Wardle has recorded a case in which, from the free use of iodine, the testes had become diminished; but, observing the effect produced, he discontinued it, and the glands recovered their natural functions.

Mr. Green inquired whether, by promoting the absorption of tumours by this means, no danger was incurred from the formation of internal abscesses, such, for instance, as were known to follow the suppression of strangles? The question was admitted to be one worthy of consideration; but the Chairman thought the general result of the use of this agent, iodine, justified no fear on that head, and pointed to the distinction between a constitutional disorder and a simple local affection; arguing, that the treatment unadvisable in the one case might prove highly judicious in the other.

Mr. Dyer related a case that came under his observation, in a cow that had the epidemic of 1839-40, in which a tumour of considerable dimensions developed itself. Being called in, he employed iodine for some time, but with no marked benefit; and he therefore proposed to dissect the tumour out. The proprietor objecting to the operation, a seton was passed directly through the swelling, when a quantity of thick pus escaped, and in a month the swelling had disappeared. Mr. Dyer concluded by stating he had repeatedly used iodine for cattle, but without being favourably impressed with its action.

Mr. Simonds stated that the action of iodine on the ruminant is not so active as in the horse, nevertheless he could bear testimony to the utility of this drug in many cases. He was aware of the great tendency which existed in animals that laboured under the epidemic of 1839-40 to the formation of cellular abscesses, very many instances of this kind having fallen under his notice, and in such cases, the tumours not being malignant, would of course yield to the treatment Mr. Dyer had adopted; but had a gland been involved, probably iodine, which here had failed, would there have been attended with success.

Filariæ in the Bronchi of a Calf.

By Mr. J. Holmes.

My dear Sir, *Thirsk, Sept.* 8, 1844.

I have this day forwarded the windpipe of a yearling calf. I think it a beautiful specimen illustrative of the location of these parasites. I am sorry I cannot give you a detailed account of the symptoms, &c., as it was only by accident I saw the case. I was called in to attend a colt belonging to a gentleman a few miles from this place, and my attention was drawn to a man who was skinning a calf. On inquiry I was told the calf had been ailing ever since it was three weeks old: the symptom most prominent, indeed the only one observed, was a distressing cough, which gradually increased till the animal's death; and although its appetite remained unimpaired, it gained no flesh, and was, as the man expressed it, "a bag of bones." I became desirous of making a post-mortem examination. On opening the chest I found the two front lobes of the lungs entirely gone, not a particle remaining; and the other portions considerably reduced in size. On opening the trachea I found a host of filaria existing there, and which had found their way down into the bronchial tubes, as far as they could get. At the top of the epiglottis they seemed so numerous as almost to fill up the opening. They are now alive at the time I am writing, which is sixteen hours since the death of the animal.

I need not enter more fully into the appearances presented, as you will have an opportunity of observing them for yourself. Nor have I time at present to enter upon an argument respecting the formation of these filariæ; but it strikes me very forcibly that, if not engendered, they have been, at least, fostered by the diseased state of the animal.

I am, my dear Sir,
Your's very truly.

Several members made observations on the foregoing case, but they were chiefly of a speculative character. The Chairman dwelt upon the nature of hoose or husk, and alluded to the different modes of treating this disorder by tracheotomy, the inhalation of diluted chlorine, and the administration of ol. tereb. in doses of ʒij to ʒiv: to the latter method he, from experience, was inclined to give his approval.

Case of Melanosis in a Cow.

By Mr. J. K. Lord.

Tavistock, October 10, 1844.

I was requested to see a valuable Durham cow having a large fungoid mass growing from the left orbit. On examining it I found that nearly the whole of the structure of the eye was removed, and its place occupied by a mass which I soon ascertained was a melanotic tumour: it had the peculiar jet-black appearance, and discharged a thin offensive matter that constantly ran down the side of the face. I told the owner that nothing but its extirpation would be of any service: this he assented to; and, having previously prepared my patient by lessening the provender and administering aperients, I had her cast, and proceeded to perform the operation as follows:—

I first passed a suture through each eyelid, so that my assistant could hold them apart; I then made an incision through the posterior or upper canthus, extending about an inch beyond the bony ring of the orbit. I now had the tumour well exposed, and, commencing at the posterior canthus, dissected it out, keeping as near the bone as possible. Pretty much bleeding followed, but this was easily stopped by using torsion on the arteries. I then filled up the orbit with tow, over which I tied the lids with the sutures I had previously inserted, and the animal was allowed to get up.

I saw her early next morning, and, not finding any febrile action present, I only ordered her a little green food. The dressings were not removed until two days after the operation, when I applied the nitrate of silver to the exposed surface. This caused, as I intended, a considerable slough to take place. I then used a weak nitric acid wash, in the proportion of one part of the acid to forty or fifty parts of water, and the wound soon assumed a healthy character and rapidly healed. The cow is now quite well, and fattening fast.

Not having seen a case of melanosis as occurring in the ruminant recorded, I have thought that this might be worthy of the consideration of the members of the Association. It is, perhaps, as well to remark that the cow was nearly white.

Mr. Simonds.—I may observe, that the origin of no disease is, perhaps, involved in greater obscurity than melanosis. We know but little of the causes of this peculiar affection, and there are great differences of opinion as to the nature of the peculiar matter which characterizes this malady. Some regard it as a fungoidal growth, others consider it a particular substance eliminated from the blood, while another class view it as a carbonaceous deposit. Not one of the several writers on this subject, however, can be considered as having established his opinions; and all we can with certainty assert is, that the disease, in its later stages, is associated with a fungoid development. The present case is not without interest, and will be the first recorded in THE TRANSACTIONS of this disease in the ruminant. However common melanosis may be in the horse, cattle appear to be in a great degree exempt from its attacks; and during a long and extensive practice I never met but with one case of the kind. It is singular that the disease, in the instance now under consideration, attacked the eye; and in the one to which I have adverted, as having fallen under my observation, the orbit was likewise the seat of the affection. The melanotic tumour in this case, however, was associated with fungus hæmatodes; the bones of the orbit were absorbed, the whole of the globe involved, so that no eye could be discerned; and an unhealthy surface was presented, which bled on the slightest touch. There being no prospect of a cure, I advised the animal should be destroyed.

The diseased facial bones I have preserved.

[The Chairman here exhibited to the members of the Association the skull of a ruminant. The lachrymal, malar, and superior maxillary bones, with a great portion of the frontal arch, shewed extensive caries, the whole of which cavity had been filled with the fungoidal tumour.]

The animal to which I allude was not, however, as in Mr. Lord's instance, near white, being marked about the body with several streaks of a light red colour. This distinction is only deserving of notice, because we know melanosis in the horse is intimately associated with colour. The treatment Mr. Lord adopted was decisive and judicious; but I much doubt if the result will be favourable, because, in this disease, the constitution is affected, and the viscera generally involved. As a proof of the correctness of

this opinion, I submit to you a divided radius, where you will observe a mass of melanotic matter deposited in the centre of the cancelli. This bone was taken from a horse which belonged to Sir W. Magnay. The animal was, some months ago, admitted into the infirmary to be operated upon for melanosis, there being a large tumour between the coccyx and anus, and others in an earlier stage of development on the body; several of these were removed, the owner being first apprised that the disease, in all probability, would not be eradicated by the operation. As I expected, in about three months afterwards the animal was again brought to us, and another tumour of a large size occupied the place of that I had excised, and others had become more developed. The horse looked poor—he had lost flesh, and the coat was staring—the appetite was impaired—and the near hind leg was partially paralyzed. Seeing there was no hope of a permanent cure being effected, we recommended the horse should be destroyed.

On a post-mortem examination, the spleen was found to be four times its natural size, and covered with isolated and congregated melanotic tumours, some of them being of considerable magnitude. The colour of these tumours was not uniform—some were black, others were in different stages advancing towards it. The liver was also affected: its surfaces were studded all over with light coloured spots, which were tubercles of a round figure and of a dusky yellow colour, hard, and in their centres black melanotic matter was found deposited. The kidneys, lungs, connecting cellular tissue of the muscles, the surfaces of the bloodvessels, and the skin, were found covered with small black deposits; and over the sacro-sciatic nerve of the left side was a large deep-seated tumour, the pressure of which at once explained the cause of paralysis in the near hind leg.

To avoid an unnecessary repetition, I beg to refer you to the first volume of the TRANSACTIONS of the Association, where Mr. Morton has collected all the continental and English authorities of note upon this subject.

A Breed of Solipede Pigs.

By Mr. F. King, *Jun.*

Dear Sir,—The accompanying foot was given to me the other day, with another similar to it; and as I consider it rather a curiosity, I have sent it to the Association. This is the *third generation* of pigs that have been born with the same kind of feet, and the mother of these is just like them, and has had several litters similarly formed.

Believe me,

Your's sincerely.

Mr. Simonds.—The only peculiarity in the specimen before us is, that the superior bones of the phalanges are not united, while the lower ones are blended together. In the solipede race of pigs both the upper and lower phalanges are usually consolidated. The specimen, therefore, has some little interest, and it serves to illustrate the progress of those changes by which breeders often appear to produce distinct varieties: thus we find in some parts of England, particularly the north, that these instances are common.

An Account of a singular Disease, principally affecting the Spleen of Cows.

To the Veterinary Medical Association.

Gentlemen,—The following account of a singular disease which appeared this summer among the cattle of two dairies, in this county, I have ventured to lay before you, being assured the importance of the subject will receive from you the consideration it deserves.

I am,

Your's, &c.

J. Howell.

July 5th, 1844.

I was requested to attend at Mr. Barton's, a farmer, residing about six miles from this place, to meet Mr. Tiley, veterinary surgeon, of Dursley, and Mr. Limbrick, veterinary surgeon of Sodbury, for the purpose of examining a cow which had died that morning, supposed to be poisoned. I found upon my arrival that two other cows had died in a similar way the previous week; that four others were then ill, but two of them were fast recovering.

The symptoms, I could gather from those then ill, and also from Mr. Tiley, who had been in attendance, were, when first seen, a peculiar dulness, hanging of the head, back arched, and a disinclination to move; still they fed a little. After these symptoms had existed from eight to twelve hours, a trembling of the muscles of the neck and shoulders came on, with dimness of the eyes, together with a swelling of the glands of the throat and a great difficulty of breathing, and in some a total loss of milk.

The muzzle was moist, ears and root of horns of the natural temperature, fæces soft, and some were rather inclined to purge; rumination continued, and in nearly all there was an inclination to feed up to the time of death. Those that died stood up, perhaps, two or three hours after the trembling fit came on, when they would suddenly drop down, put the nose round to the left side for a few minutes, then stretch out the head, and die without a struggle. In fact, so little was there to be observed amiss with them a few hours before death, that a stranger going into the court or field would hardly be able to tell the healthy ones from those that were ill.

The post-mortem appearances observed in the one we examined: On opening the cavity of the abdomen, a slight redness of the peritoneum and omentum was perceived to exist; and on removing the intestines, a large quantity of very dark-coloured sanguineous fluid was found within the cavity.

The spleen was enlarged to four times its natural size, softened, and contained a quantity of very thick and dark-coloured blood, some of which was escaping from small ruptures on its concave surface.

It being Mr. Tiley's opinion that the cows had died from some vegetable poison, I made a very careful examination of the contents of the stomach, but failed in detecting any noxious plants.

The abomasum was slightly inflamed, and contained a quantity of dark-coloured fluid, with pieces of stone, bricks, and other refuse matter. The heart and lungs were perfectly healthy, the lungs being very white; the brain also appeared normal, excepting a slight congestion of the plexus choroides.

The treatment Mr. Tiley had adopted consisted in blood-letting, and subsequently administering a dose of mag. sulph.; afterwards giving half-a-pint of brandy in water twice a-day, and, fortunately, five out of eight attacked, recovered. Part of the flesh of the first cow was given to three pigs: they all died. All the cows on this farm had a dose of sulphate of magnesia given to them, and only one was attacked afterwards, which recovered.

On the 25th of July, Mr. Randal, living in the adjoining farm, perceived one of his cows to be ill. Mr. Tiley attended, bled her, and gave a draught; however, she died the next day. Upon examining her, the spleen was found to present the same appearances as that of the other cow. Some of the blood taken from this cow was given to a fine sow pig, and she died the next day.

On the 1st of August another was taken ill, and died; on the 5th, another; 8th, another; 9th, another: on the 10th, the owner came to ask me to see four others, all [redacted] ill. One of them died soon after I arrived, so that I had an opportunity of observing the symptoms, and making a post-mortem examination of that one, and also of the one which had died the previous night. I found them present nearly the same appearances as the one examined at Mr. Barton's. All the viscera of the abdomen were perfectly healthy, excepting the spleen: one of them weighed twelve lbs. three-quarters. Two of the cows ill appeared to be rallying: they had all been dosed with brandy and salts. To the other I gave a small dose of sulphate of magnesia, bled her to the amount of seven quarts, and blistered the throat and the region of the spleen. The difficulty of breathing was very great in this case.

11th Aug. 6 A.M.—I again visited them. The one bled yesterday appears a little relieved in her breathing. Repeat the blistering, and give potas. nit. ʒiv, ant. tart. ʒj, pulv. zingib. ʒij; omni quartis horis.

12th.—Upon calling this morning, I found my patient had died during the night. Her spleen was also very much enlarged. This day I bled the whole of the cows on the farm, twenty-nine

in number, and gave to each mag. sulph. ℔ss, sulph. sub. ʒiv, potas. nit. ʒiv, cum zingib. ʒij.

Only one more fatal case occurred after this, which was on the 14th. This animal did not live more than two hours after first seen to be ill. In two cases I administered sp. ammon. co. ʒj every two hours, and, as I think, with benefit. Those that recovered had not the trembling fit so strong, neither was the difficulty of breathing so great. Seven of them were milkers, and a nineteen-months'-old heifer, making eight which died out of fourteen that were attacked.

The cattle on both farms were in the same pasture they had been in for some time. The land is a poor clay soil, and the keep on it very short, owing to the long-continued drought.

There is no running water on either farm; still the cattle were not so bad off for water as on many of the neighbouring farms.

DECEMBER 10, 1844.

The TREASURER in the Chair.

Messrs. R. Bunnell, T. Barrow, and G. White, were elected Members.

Mr. Erasmus Wilson presented to the Library an Essay on "A Horn developed from the Human Skin."

ON CONSTITUTIONAL OPHTHALMIA.

By F. LEMANN, *M.D.*

[Communications addressed to the Patron, Professor SEWELL.]

Woodlands, near Wellington, Somersetshire,
November 20, 1844.

My dear Sir,

SINCE I came to reside here, two years ago, I have been obliged to act as my own veterinary surgeon, there being no certificated practitioner of the art within several miles of me to whom I could refer in cases of illness among my horses.

The very valuable information I have received from you on the subject at different times, within the last twenty-five years, inspired

me with confidence in the offset of my practice; and I have endeavoured, by reading, reflection, and reasoning analogically, to make up for the deficiency of my previous practical knowledge. Many of the diseases of horses are so similar to those of the human subject, and may be cured by the same remedies, that I have now no difficulty in treating them. I find it quite as easy to develop symptoms in the dumb animal as in the human subject. No mistake, for example, need occur in the diagnosis of enteritis, or the distinction between it and spasmodic colic; and the symptoms of pneumonia and pleurisy are very palpable.

The known success I have met with in curing my own horses has induced several neighbours to solicit my advice for theirs, by which means I have gained much experience in a short time. The disease which I believe has been considered almost the opprobrium of the veterinary art, viz. specific ophthalmia, which frequently terminates in moon blindness, caused me much trouble and anxiety in the early part of my practice; but I have now obtained the mastery of it, and it is chiefly on that account I write to you at present.

A very fine young horse I purchased when I first came to reside here was, after a few weeks, attacked with inflammation in one eye. No general or constitutional symptoms of disorder attended the attack; it appeared to be quite local; and I therefore hoped it would prove to be only a slight cold, and treated it accordingly during the first day: but finding it not improved the next morning, I lost no further time, and began active treatment. I bled him freely, put him on bran mash diet with nitre, and purged him with aloes. Fomentations were applied externally. After about four or five days the inflammation appeared to be abating; but all on a sudden, and without any assignable cause, it was renewed with increased violence. I then bled him with my lancet from the angular vein, and applied thirty leeches round about the orbit; the antiphlogistic treatment in all other respects, and external applications, were continued. In about three weeks the inflammation had pretty well subsided, leaving, however, some opacity of the cornea.

He had another similar attack a few weeks later, which lasted four or five weeks ere the inflammation disappeared. For the want of knowing a better, I repeated the same treatment as in the former instance.

During the summer months the horse recovered his strength, and performed his daily work with animation; but, upon the sudden change from warm to cold and damp weather, the eye was again attacked precisely as before.

During the interval of the attacks I pondered a good deal on the unsatisfactory results of the treatment, and called to mind the great variety of structures which compose the eye and its appendages, which we know exhibit specimens of every one of the animal tissues. We find in it bone, cellular and adipose substance, and bloodvessels; mucous, fibrous, and serous membranes, &c., I also reviewed in my mind some of the diseases we ourselves are liable to: I allude especially to those which attack particular tissues, such as rheumatism and gout. These reflections led me to the conclusion, that although the disease alluded to had hitherto been considered an affection of the tunica conjunctiva only, it in all probability involved some fibrous tissue, and resembled the disease we call "rheumatism of the eye" in the human subject; at all events, as I had been so completely defeated in my former treatment of the case, I resolved to proceed upon this new view, and resort to the treatment I have always found successful in cases of rheumatism of the human eye, and other parts.

I did not bleed my horse, as there were no apparent symptoms denoting constitutional disturbance; but I ordered him bran mashes with some chopped carrots and bruised oats, and I gave him pulv. rad. colchici ʒij et potass. nit. ʒj in a small proportion of the mash (in order that none of the medicine might be lost) in the morning and evening. By the time he had taken four doses, i. e. in about forty-eight hours, his bowels became rather relaxed, and I thought it prudent to suspend the medicines, lest the colchicum should induce inflammation of the mucous lining of the intestines: he therefore on the third day took no medicine. We already perceived a decided improvement in the eye; but as a good deal of inflammation remained, on the fourth morning I ordered colchici rad. pulv. ʒj, pot. nitrat. ʒiv, to be given twice a-day:—this plan was continued three days longer, by which time all symptoms had vanished, and the eye regained the same degree of brightness it possessed previous to the attack.

Instead of fomentations to the eye as formerly used, I ordered a warm dry flannel to be applied over it repeatedly during the day,

and had the neighbouring parts rubbed lightly with a soft hand, i. e. shampooed: both appeared to soothe him very much. To the conjunctiva I applied three times a-day, by means of a camel-hair brush, a solution of the nitrate of silver, five grains to an ounce of distilled water.

Since this last mentioned cure, some similar cases have happened to my neighbours, who solicited me to see them, and they have all got well by the same treatment; so that I have now no hesitation in pronouncing it to be an infallible remedy.

While on the subject of colchicum, I will mention my success with it in curing a case of pneumonia in one of my saddle horses.

The attack commenced in the usual way, and I bled him freely once; and recollecting the injunction against giving purgatives in that disease, none were administered; but two drachm doses of colchicum were commenced immediately after the bleeding, with warm bran mashes, but no oats. In about forty-eight hours the bowels became relaxed, and soon after every symptom of inflammation disappeared. I listened repeatedly with my ear to his chest during the treatment, and distinctly marked the various changes from congestion of the lungs to healthy breathing. I gave him ʒj doses of colchicum for two days longer to complete the cure.

It is of importance to ascertain that the colchicum powder be genuine. I believe the powder of the root is not in general use, and that linseed meal is sometimes substituted for it. As I use a good deal of it, I purchase mine at Apothecaries' Hall.

Believe me, my dear Sir,

Your's very truly.

Woodlands, near Wellington, Somersetshire,
Dec. 2, 1844.

My dear Sir,—You have my free consent to make what use you please of the communication I sent you last week respecting my treatment of the ophthalmia in horses, and it will gratify me to hear it has been read and discussed at the meeting of the Veterinary Medical Society. I shall rejoice, also, if the treatment I found so eminently successful in curing my patients be repeated by other persons who are competent to test its efficacy.

I care not what name be given to the disorder at present; the proof of cure is the main object of inquiry, and of that I feel confident, and shall therefore abstain from any hypothesis on the subject, though I could now adduce abundance of facts in corroboration of the opinion I stated in my last letter, viz., that the disease called "specific ophthalmia" in the horse, is manifestly and essentially a rheumatic affection; by which epithet I mean to designate that peculiar disease which is prone to attack the fibrous tissue in particular.

In my treatment of the cases I described to you, I combined nitrate of potash with the colchicum, in obedience to the popular opinion of its properties as a febrifuge; but I must candidly state that I rest all my confidence on the colchicum. To the peculiar and specific action of that medicine on fibrous tissue I ascribe its beneficial influence in all diseases of increased arterial action. We are in possession at present of no other medicine of equal efficacy in controlling morbid action of the heart and arteries.

I deny that digitalis, opium, conium, and other medicines of that class, operate in the same way upon the circulation as colchicum does; they benumb the brain, and too frequently mask the real morbid condition: but colchicum never oppresses the sensorium, though its operation in checking diseased action is frequently so sudden as to appear almost magical.

I could dwell a long time on the properties of this medicine, which I have used many years with the happiest results; but I must not trespass further on your valuable time to describe cases which are very interesting to me, but might prove irksome to you.

I remain, my dear Sir,

To Professor Sewell, &c. Your's faithfully,

FRANCIS LEMANN.

Mr. Morton said that as yet the "colchicum autumnale" has found no place in the materia medica of the practitioner of veterinary medicine. Some years since he instituted several experiments on horses with this drug; more, however, with a view to ascertain its general action on the system than to find out any specific virtues it might possess. Indeed, his experience had tended to weaken his faith in specifics as a class; nevertheless, it is well known that

disease materially alters, if it does not determine the action of therapeutic substances. The following experiments it will be borne in mind were performed on horses apparently in health. He commenced by giving one ounce of the fresh root of the meadow saffron daily, beating it up with crushed linseeds, so as to form a ball. This dose was gradually increased until three ounces were given, twice in the day, and with every increase of quantity marked action supervened. The animals' pulse prior to the exhibition of the agent was 40, and with each augmentation of the dose it fell, until with the maximum quantity it had decreased to 28 beats in the minute, still continuing firm in tone, and regular. The diminution was two beats per diem. Besides this sedative influence, the kidneys were at the beginning called into increased action; and by additional clothing the exhalents of the skin were easily excited. After the larger dose had been repeated two or three times, the bowels became relaxed.

Thus the colchicum autumnale is proved to be a drug of some power, and probably of value, its action being that of a sedative, and also a laxative in large doses, and a diuretic or a diaphoretic in smaller ones, as the exhalents of the skin are or are not rendered susceptible of being acted upon by the aid of artificial warmth. On withholding the drug, the pulse gradually regained its former standard, and during the experiments the animals evinced no disinclination for food, but it was rather thought that the appetite had increased.

Mr. Simonds.—It would appear from the observations contained in the communication just read, that Dr. Lemann is of opinion that the disease known to us as "constitutional ophthalmia" is principally confined to the conjunctival membrane: this, however, is not correct. And although veterinary surgeons may not be agreed as to the original seat of the disease, still he (Mr. S.) considered that they are unanimous in looking upon the conjunctiva as being involved only secondarily. This point is, however, of minor importance; nor should he have noticed it had it not been possible for silence to have been construed into acquiescence. Of the action of colchicum he regretted he had no experience. The experiments which the Secretary had obliged them by reading were, however, of great interest; for it appeared that colchicum lowered the heart's action without inducing an intermittent pulse,

such as generally accompanied the exhibition of many other sedatives. It also seemed not to impair the appetite, but rather to increase the desire for food; therefore, in cases of debility associated with irritation, these were therapeutic qualities of the greatest value. Colchicum, likewise, seemed to have a diuretic and diaphoretic action; neither of which should be overlooked, although oft repeated doses appeared necessary to produce these effects. It was with extreme difficulty that diaphoresis could be induced in the horse. Some even denied the possibility of producing it at all; and among these was the late Professor Coleman. With no less an antagonist had Mr. Morton to contend, when he asserted his belief in the power of various agents to excite the cutaneous secretions of the horse. Professor Coleman earnestly supported his opinion, and was accustomed to account for the general fatality of pneumonia among horses, by the veterinary surgeon not having any agent at command, which, like ipecacuanha or potassio-tartrate of antimony in the hands of the human practitioner, at once lessened the heart's action, while it increased that of the capillaries.

Mr. Ernes admitted the importance of Dr. Lemann's communication, but regretted that the observations it contained were not more extended. He lamented that a gentleman, evidently so well qualified to observe, had not in the first instance been well informed as to the prevailing opinion regarding the nature of the disease; and had not been able to support his opinions by positive evidence, such as may be gained from dissection. The obligation he had conferred upon the Association by directing their attention to new facts, and freely communicating his opinions, deserved their respect and acknowledgment; but he could not agree with Dr. Lemann that the disease originated in the fibrous structures. He had seen much of specific ophthalmia. He did not exaggerate when he asserted that every seven horses out of every ten in Belgium were the subjects of its ravages. The farmers of that country were much addicted to close breeding. The parent of the mare was often the sire of her foal; and specific ophthalmia became very prevalent. Coarse animals with large heads were remarked to be most predisposed to its attacks, which generally commenced about the fourth year, and terminated when the animals were seven years of age. The eyes were consequently attentively observed and

closely watched. No specific for the disorder had, however, been discovered. Couching had been tried as a remedy for its termination in cataract, but the result of the operation was not such as encouraged the practice, which however, he believed, was still often resorted to. When he was last in Brussels, Professor Brogneiz shewed him an instrument by which the lens could be removed without casting the animal. The operation was not difficult, nor, he concluded from the fact he had just stated, one attended with very acute suffering to the patient. The only objection to its general adoption was the fact of the sight not being by it restored. This he thought would be at once perceived to be a necessary consequence when the character of the affection was considered. The conjunctiva was certainly not the seat of the disorder. He had known cases in which ophthalmia had destroyed vision; and because no external inflammation had marked the disease, the fact of its existence at all had remained unknown till the animal by running against some object informed the owner of its loss of sight. He (Mr. Ernes) considered the aqueous humour as being primarily affected in specific ophthalmia, having remarked that cloudiness of the fluid in the anterior chamber of the eye was the earliest symptom to be observed. What power colchicum might have over this particular form of disease he could not say. It was a medicine that was decidedly anodyne in its action. As to its possessing any peculiar diaphoretic power, might not diaphoresis be a symptom developed upon the lowering of the pulse? Partial sweats are found to denote the approach of death, and also to be present as an indication of debility. At this time of the year, too, horses are often debilitated, and, though inhabiting cold stables, are not unfrequently discovered in the morning with their coats wet with perspiration. Diaphoresis might therefore spring from causes which perhaps were produced by the medicine; but this made it only a secondary, not a primary effect, and which was not to be overlooked. Moreover, the colchicum had been employed by Dr. Lemann in conjunction or combination with other medicines, and this circumstance rendered the arrival at any conclusion from the present case almost if not quite impossible. Had it been wished to demonstrate its effects, the agent should certainly have been employed alone.

Mr. Morton.—It is true that in the treatment of ophthalmia,

as advocated by Dr. Lemann, colchicum was employed in union with another agent; but any objection that could be thus taken did not apply when this medicine was given alone and experimentally by him. Its action, he repeated, was both diuretic and diaphoretic, as well as sedative; and these effects were manifested alike under the influence of large or small doses. Moreover, it must not be forgotten that Dr. Lemann placed his entire confidence in the colchicum only, although the combination adopted by him was not an injudicious one; for since no two medicines produce their effects by precisely the same means, the union of agents, even of the same class, was commendable, as their action would be greater than if either was alone employed. Again; one might fail to produce the desired influence from the peculiar morbid state of the system, and the other might supply the loss, while in every case the action was rendered more certain and decided. That colchicum is a diaphoretic, seemed a conclusion warranted from what is yet known of its effects upon the horse. Mr. Ernes appeared to be disposed to attribute this disputed action to its narcotic influence, and submitted that a sudorific tendency was the natural consequence of the depressed energy of the nervous and vascular systems, and induced debility. He (Mr. Morton) did not wish to insist upon his own opinions. He would rather leave experience to decide upon their worth than by any present effort to attempt to afford them the slightest protection. If they were true, they required no such protection; if they were false, they deserved none. When he first observed diaphoresis in the horse to ensue upon the action of certain medicines, such agents lowering the heart's action, the possibility of diaphoresis being thus brought about was denied. In vain was the fact appealed to. Positive evidence went for nothing before the assertion, that, unless the circulation was quickened or pain induced, the horse never did and never could perspire. Since that time, many, eminent for their impartiality and talent, had joined their testimony to his; and it was not now perhaps too much to say, that the general opinion was in favour of the view he had advocated. It could not be denied that, under the influence of colchicum, the pulse did diminish in its number of beats; but with that decrease there was no symptom whatever of debility. The appetite continued good, indeed improved, for an increased desire for food charac-

terised its action. Therefore it would be more reasonable to attribute the diaphoretic influence of colchicum to the power which that medicine has over the exhalents of the skin than to its debilitating influence on the system.

Mr. Robb was not inclined to view gout or rheumatism as confined to the fibrous tissues: he was rather disposed to think other structures were involved, for he did not see how they could be excluded. Dr. Lemann spoke of ophthalmia as bearing a close resemblance to rheumatism of the eye in the human subject, by which he (Mr. Robb) imagined a shifting of the disease to that organ was implied. But specific ophthalmia appeared to originate within the eye itself, though, after its development, the disease did frequently shift from one eye to the other, and in such a manner as to warrant a resemblance being drawn between the two affections. Gout was not, however, a fixed disease, but of an erratic nature. That painful disorder could likewise shift from place to place, and therefore might also be likened to ophthalmia. Gout had been supposed to spring from the presence of uric acid, or its elements, and, he would add, probably hippuric acid in the blood; and, if this were correct, which there was good reason to believe, inasmuch as urea, which was a product of the oxydation of uric acid, had been found in diseased blood, and the acid itself had been detected both in the perspiration and in the urine during an attack of gout, and had been often found deposited in the tissues about the joints as the disorder had subsided; then, specific ophthalmia was rather carried through the medium of the diseased circulation to the part which became the seat of its attack, and was not generated within or by any particular tissue of the eye itself. In this case, however, the place of uric acid would probably be supplied by hippuric or benzoic acids, as it was not likely that uric acid would be found in the blood of the herbivora. Colchicum, though acting principally on the duodenum, appeared to act as a diuretic, and for a diseased state of the blood it therefore seemed likely to prove a remedy; though somewhat of that action in Dr. Lemann's case must be attributed to the nitrate of potass with which it was combined. Secretions, however, were very often not critical when induced directly by medicine—at least, such was his (Mr. Robb's) opinion—though Dr. Lemann, perhaps on better grounds, had arrived at the opposite conclusion. It was well known that spe-

cific ophthalmia was inherited; at least the predisposition was communicated by the sire or dam. Probably, most diseases could be traced to hereditary predisposition: a tendency to gout was well known to be thus transmitted; and this point bore especially on Dr. Lemann's views, and seemed to corroborate them. The medicine to which the Doctor had been pleased to direct their attention was at least characterised by its safety, and he trusted the report which had that night been read would stimulate to a farther trial of its virtues.

Mr. Gregory did not consider the aqueous humour to be first affected, but attributed the cloudiness which ushered in the disorder to an infiltration between the layers of the cornea. Though he thus far dissented from Mr. Ernes' view of the nature of specific ophthalmia, yet he perfectly agreed with him as to horses being more liable to its attacks at any earlier period than most writers seemed to consider. Between the ages three and five he had remarked the greatest number of cases, and there was no disease which was better established as being hereditary. Mr. Gregory then related several marked instances illustrative of this remarkable tendency; and the debate concluded by the Chairman observing that his own experience had induced him to consider horses were most liable to attacks of specific ophthalmia after they had attained their seventh year, provided such disease did not arise from hereditary predisposition. No fact, probably, could be better demonstrated than that horses were not exempt on the attainment of the seventh year. Difference of country, soil, and climate, might account for partial differences of the development of this disease; but he was at a loss to reconcile the total variance of the statements he had heard with the settled impressions that practice had impressed on him.

On the Epizootic that prevailed among the Horses at Bangalore, particularly in the Lines occupied by the 13th Light Dragoons.

By N. F. Clarkson, *V.S., Hon. East India Company's Service.*

The nature of epizootic disorders generally, to which horses in this part of India are subject, seems but imperfectly understood.

By the veterinary reports on that disorder which prevailed so

extensively among the horses of H. M. 18th Light Dragoons at Bangalore in 1834, of which condensed abstracts from reports of proceedings of committees, and consultations recorded in the papers I have the honour to forward with this letter*, it appears to be the most prevalent opinion that the disease owed its origin to the *effects of bad forage and water*, and also that some peculiarity of atmosphere was favourable to its production.

I have perused all the documents relative to this subject, and duly appreciate the information they are calculated to afford, but must confess it does not appear to me that such is absolutely proved to be the case: at all events, so far as regards the *forage* and *water*, I differ in opinion with that generally expressed as to the cause that predisposes to this disease, and, though perhaps not so widely, the immediately exciting one also.

It has been said the disorder was caused by bad grass and water acting mechanically as an irritant to the stomach; the one from being hard, dry, and indigestible—the other, on account of its containing mud or sand: that these became the exciting causes, and, so far as I can ascertain, constituted the chief means of predisposition to the affection as well.

The post-mortem examinations proved that chronic inflammation of the stomach had existed, and was supposed to have been present some considerable time previous to the animal giving way to the affection, until, by some unaccountable means, it ripened into active disease, sufficient to produce general derangement throughout the whole intestinal canal, irritative fever, and death.

I do not for a moment mean to say that bad forage is not likely to bring on disease, or that sand or gravel will not irritate the bowels; on the contrary, I know they frequently do so, producing most serious evils, and no doubt the disease in question was in some measure influenced by the dry forage, but, in my estimation, in a very secondary kind of way; otherwise, how could the horses of the 7th Cavalry at the same station escape the complaint, and be in usual good health, when it was unanimously allowed that the forage received by that corps was in every way of an inferior description to that supplied to H. M. 18th Dragoons? If it were so potent in the production of the epizootic, how is it possible these

* These documents being voluminous, and in this instance unimportant, are omitted.

horses could be free from a complaint that was proving so destructive within a short distance of the same lines, being at the time exposed in a *greater* degree to that bane which was supposed to bring about the disorder?

With every deference to those that had better opportunities than myself of judging of this disease, by their being on the ground when it raged, I do not think the forage had a much more deleterious effect here than when given to horses liable to, or labouring under, disease generally; that is, if a horse is predisposed—no matter from what cause—to any disorder, the stomach will certainly bear sympathy, and coarse food must be injurious.

If the *forage* were really the principal cause of such extensive mischief, how happens it that ten horses died in one troop and not one in the next? Those horses were all fed, watered, and treated alike in every way; yet this partiality does not seem to attract material attention.

The epidemic that prevailed at Arcot in 1834-5 (of which I shall speak at some future period) was remarkably characterised by a similar partiality. My register shews 63 admissions from the right squadron, and but 34 from the left. The deaths were in proportion, though comparatively fewer in the left wing.

It is admitted in the proceedings at Bangalore that the locality of the lines occupied by H. M. 13th Dragoons, and something in the atmosphere (probably), contributed to bring about the disease. If it be allowed that the situation had more than a secondary influence, all difficulty to account for the *partial* run of the complaint will disappear; and I acknowledge the fact, that, when so many horses are herded together, they demand an immense volume of pure air, which can only be supplied in sufficient abundance to insure health, by a perpetual and uninterrupted access of free, pure air: and this locality being deficient in this, which is indispensable and vitally necessary for the preservation of health, some clue to its origination *generally* may fairly and reasonably be attributable to the situation of the lines, and this more than all the other causes besides.

By the blood becoming disordered, or an irritability of the nervous system established, the various functional powers will be more or less affected. This state of things may progress slowly, and be undetectable for a considerable length of time, and insidiously work

itself into a predisposition for taking on more active disease. The equilibrium in the normal powers of life being thus destroyed, the effect of malaria, or any thing baneful enough to affect health, can no longer be resisted. The stomach will sympathize—the secretions become morbidly changed—and the animal, to relieve himself from pain, is directed instinctively to eat earth. This may account for the presence of so much sand or mud observed in the large intestines. With respect to the treatment, I will not at present say more than that preventive measures will doubtless prove the surest remedy: to effect which, commence by clearing away walls, buildings, or any thing likely to obstruct the free current of pure air—or move the horses to other ground—or take up most of the flooring, and replace it with clean new-dug earth—give the horses an entirely new bed once a week, instead of mixing the old and new litter together—sweep out the lines;—and by these attentions to cleanliness the general health must be improved.

DECEMBER 17, 1844.

The PRESIDENT in the Chair.

Messrs. J. Arnold, W. Keyes, and G. Varnell, were elected Members.

Mr. Ernes exhibited, by the aid of a microscope, many of the "acarus equi." He stated that the readiest mode of procuring these parasitic insects was, to scrape with a spatula the scurf from off the skin of the infected animal on to a sheet of white paper, when, by warming the matter obtained, the motions of the insects might be distinctly perceived by the unaided vision. The acarus was, however, very difficult to procure from a horse which had been subjected to only one dressing for mange. He added, that after the able and lucid remarks which Mr. Erasmus Wilson had made upon this subject at the close of the last session, and which were published in the TRANSACTIONS of the Association, he

would not attempt a description of the mange insect. He then briefly alluded to the many discoveries of similar parasites as the cause or result of cutaneous diseases in different animals from 1784, when M. Leontine first affirmed itch in the human subject was the result of the development of a living insect; to the recent period, when Mr. Wilson had in this country demonstrated mange in the horse to be associated with the ravages of a similar parasite.

The President remarked on the importance which was to be attached to the inquiry, whether these insects were the cause or the effect of the disease, and whether they were present in every case of mange.

Mr. Ernes said that the greatest difference of opinion prevailed among pathologists upon these points. He was inclined to think that the disease first appeared, and the insect was only developed with the vesicle in the interior of which it seemed to exist. The horse, from which the parasites now before the members were that afternoon obtained, was fat and in good condition, about seven years old, and the acari could only be procured from him in one spot, on the inside of the thighs.

The President inquired if Mr. Ernes had made any experiments as to the capability of communicating mange by this insect?

Mr. Ernes replied, that the only experiment of the kind which he had made was an unintentional one upon himself. When examining some of the acarus equi during the last summer, he had unthinkingly touched his ear with his finger. A violent itching followed, which continued for twenty-four hours. This instance would seem to imply that the disease could be communicated in the manner to which the President had referred, but it would also indicate that the insect lost its power of propagating, and speedily perished, if placed upon any other creature than the one upon which nature had designed it to exist. It had been stated that the acarus equi lived but for the period of forty-eight hours. Mr. Ernes, however, said that he had kept the insects in the scurf alive for ten days, and even under a watch-glass he had observed them to be alive after three days—clearly proving that the general opinion as to the shortness of their existence was incorrect.

Case of Encysted Chronic Abscess containing Masses of Hair and inspissated Pus, which had assumed the Form and Size of small Peas.

By Mr. H. Christian, *jun.*

Canterbury, Dec. 8, 1844.

Dear Sir,—Thinking that the members of the Veterinary Medical Association would feel interested with the enclosed singular tumour, I have forwarded it to you. During the life of the animal it appeared like an indurated and circumscribed swelling, situated under the skin in the front of the chest, partly embedded in the pectoral muscles; but not interfering at all with the animal's work, or causing the least lameness, it was not considered worthy of notice. It has been there more than twelve years, and the commencement was not known, or even noticed. The horse was a black cart stallion, used for draught, and, being very old and worn-out, was destroyed; when, on removing the skin, this body presented itself; and being accidentally cut, many of the pea-like concretions were lost. I send you what remain. The two larger bodies appear composed of hair that has become felted together.

I am, my dear Sir,

Your's truly.

The President.—The morbid parts before me consist of a sac, in the interior of which are a number of small rounded bodies resembling white peas, and apparently composed of inspissated pus. I should conjecture that in this case an abscess was first formed the contents of which not being evacuated, the more fluid portion was absorbed, and by the action of the muscles the thickened and confined matter was rolled into the forms it now presents. That the contents have been subjected to such motion, and which can alone be attributed to the muscles, it is but reasonable to conclude from the smooth surface and perfectly spheroidal figure of each of these numerous bodies. It will be remembered that, during the last session, Mr. Hunt sent to the Association a tumour which contained several bodies composed of inspissated pus. In Mr. Hunt's

case, however, the bodies were ovoid in their general figure and more varied in their size. I then expressed an opinion that, as the abscess had opened into the eustachian cavities, the action of the air might have in some way contributed to those singular formations, but in the present instance the air was excluded. Absorption must consequently have taken place from the inner surface of the sac; and the pus thus inspissated ceasing to act as a foreign agent, became, by the churning action of the muscles, formed into these numerous consistent and rounded bodies.

Thus far only I can offer some solution of this most singular case, which, nevertheless, presents another feature worthy of special notice. I allude to the sac, which—and I have observed the same in other cases—has assumed an integumental character. It is dense as skin to the feel. Hairs are growing from its inner surface, and it only wants an epidermis, which a more minute inspection, perhaps, may discover, to perfect its similitude with the common integument. The hair growing upon the lining membrane accounts for the presence of these larger bodies, which closely resemble in appearance the hair-balls found in the rumen of the calf. This is not a common occurrence, although I have removed tumours that were filled with hair only, and the membranes surrounding which presented all the appearance of inverted skin.

Case of Strangulation of the Rectum in a Filly, by one of the Ovaria becoming pendulous and twisted around it.

By Mr. E. Sansom.

Blackburn, Dec. 14th, 1844.

Dear Sir,—Having met with a very singular case a few days since, I have taken the liberty of sending you an account of it. If you should think it worthy of insertion in the Transactions of the Association, it is at your service.

Dec. 7th, 1844, I was requested to attend a weaning filly, belonging to John Taylor, Esq., of Morton Hall, near Whalley. His man stated she had been attacked during the night, and, thinking she had the gripes, he had taken two quarts of blood from her. I arrived about ten A.M., and found the filly very ill; pulse im-

perceptible at the submaxillary artery; breathing not much laboured, but short; legs deathly cold; continually lying on her back or belly, evincing great pain; her belly very tense and much swollen; constantly looking at her flanks; conjunctival membrane highly injected. I immediately examined her per rectum, and found I could not pass my hand up further than about twelve inches, from apparently something like a stricture into which I could introduce only the ends of three fingers. Her case I considered hopeless. I did not bleed, but gave Tinct. opii ætherial et solutio aloes āā f. ʒij, cum ol. lini ʒviii; threw up enemas of warm water, blistered the surface of the abdomen, and repeated the opium in four hours. I saw her again at eight P.M.; she was very uneasy, but the pulse could now be felt, although I could not count it: its character was thready. I again examined per rectum, and could not now introduce the end of one finger into the gut. The blister not having acted at all, I repeated its application, and continued the use of the clysters and opium. She died about seven o'clock the next morning, when I made a post-mortem examination; and to my great surprise I found one of the ovaria loose, and twisted around the rectum as tight as if a ligature had been passed around it. The ovary was of a great size, very black, and full of congested blood: it had inserted itself through a fold of the cellular membrane, and the rectum was full of dung up to the strangulation. The single and double colon were very much inflamed. I should have sent you the specimen, but unfortunately, as a person was washing it, it became untwisted, and thus its interest as a morbid specimen was destroyed.

I am,

Your's, &c.

Mr. Ernes.—The history of the case just read is, in my opinion, important, as the operation of spaying would certainly have removed the obstruction, and in any future similar case it might be performed with certainty of relief.

Mr. Morton.—This is allowed; but I would ask, how are we to know before death the precise nature of the strangulation?

Mr. Ernes.—I admit the force of the objection; and remember only one instance in which the symptoms similated those de-

scribed in the present case. The obstruction in that case was produced by a number of polypi attached to the mucous membrane of the rectum: these were removed by traction, and the animal got well.

The President.—The observations of Mr. Ernes appear to me to demand serious attention, while the objection raised by Mr. Morton all must have felt the force of. Strangulation of the rectum, produced by displacement, is by no means unusual. I have also seen lacerated portions of the omentum occasion it. The symptoms of abdominal disease are always more or less obscure; and however plainly the animal may indicate the general locality of the disorder, to accurately point to its precise seat, must, at all times, be a task of some difficulty. The examination per rectum, then, becomes of paramount importance, and no excuse on the part of the veterinary surgeon can palliate or justify the neglect of it. Surgery admits of no refinement of sentiment, but, its aim being to alleviate the sufferings of the patient, it even claims respect for the sacrifice of feeling which many of its duties compel the performance of. The examination in the present instance disclosed a stricture to be the cause of the symptoms, and enabled the practitioner to form a correct opinion as to the nature of the derangement. I think, when it has been ascertained that strangulation exists, and is produced by entwinement around the peritoneal surface of the intestine, a course of procedure is warranted, such as no ordinary circumstance would justify. Then let the horse be cast, and the abdominal cavity opened; the obstructing substance might thus be removed; and this being done, as Mr. Ernes has observed, the disease is removed. It may be said that death may result from the operation. I know it; but without the operation there is no chance of recovery. The course I am recommending, all must be aware, is one which only peculiar existing circumstances could justify. I feel it would be a desperate proceeding, and it must be one adopted only in despair of all other means succeeding in effecting the desired end. Let me not, then, be mistaken as advising the laying open of the abdomen in every case of suspected strangulation. To warrant the procedure, the precise seat of the affection must be ascertained, and every endeavour made to obtain a correct knowledge of the strangulating substance. To open this cavity is, in

the human subject, now no unusual operation, and with our patients it is one of common-place frequency. The fear which was once entertained of dividing the peritoneum no longer exists; but the huge and weighty intestines of the horse joined to the untractableness of the patient, forbid the hope that these could be minutely investigated to discover the seat of strangulation. Death to the animal, discomfiture and disgrace to the operator, would too frequently follow such speculative wildness. Only when the strangulation is upon the rectum could an operation be attempted with reasonable prospect of success; and even then it should be undertaken with promptness and in the early stage, or inflammation may have run on to gangrene.

In the case just related, from the nature of the pulse, &c., I should imagine the animal to have been beyond the reach of relief by such an operation; therefore it will be seen the remarks I have made are merely suggestions applicable to future possibilities, rather than strictures upon the present case.

---

1. ON INFLUENZA IN HORSES.

By Mr. W. Ernes.

About the end of October 1844, many horses were attacked with the influenza in the south and north-eastern parts of the metropolis, particularly on the banks of the Thames, the course of which river the disease seemed to follow: it was more prevalent and fatal among the heavy draught-horses than any other breed that came under my notice. The following symptoms were observed by me:—loss of appetite, thirst, stiffness and pain in the posterior extremities, pulse from 70 to 90, sometimes strong and bounding at the first, but more generally small and indistinct. The mouth dry, the tongue much coated, the visible mucous membranes dry, and of a brown yellow colour—the general temperature of the body below the natural standard—the fæces hard, dry, and dark-coloured—the urine scanty, of a dark colour, and in many cases voided with great difficulty, owing probably to the pain the animal experienced when in the proper position to urinate, from the state of the hind legs. The respiration is but little disturbed at first, but it soon increases. There is frequent yawning,

and an erection of the penis. About the second or third day after the attack, one or both eyes become tumefied, accompanied with an abundant lachrymal discharge; sometimes they are entirely closed. Vesicles on the eyes have been observed by Mr. Braby, but not so general as in 1836. They generally appear on the inner canthus, under the membrana nictitans. The cornea now becomes opaque, and temporary blindness is thus often produced. In one case, deafness occurred. The mucous membrane of the mouth is much inflamed, being very red, and possessing a yellow tinge. As the disease progresses, there is a glairy discharge from the fauces, having an offensive smell; the throat is very sore, and a painful cough often present. The animal evinces pain on being pressed about the chest, shoulders, and legs, and swelling of these parts frequently exists. The pulse is hardly perceptible, the respiration much increased; the fæces soft, slimy, and of a pale colour; the skin hot and tender; the thirst increased; the appetite altogether gone. There is either much nervous irritation present, or the animal stands with closed jaws in one corner of his stall. From the fourth to the sixth or seventh day a favourable crisis sets in, this being, generally, the result of medical treatment: the eyes are opened, the legs less swollen, the pulse more perceptible and stronger, the appetite returning, yet the mouth is still offensive to the smell, although the tongue appears cleaner and less coated; the alvine evacuations are about the same as they were, but the urine is very abundant, clear, and natural. The animal, although continuing for a time exceedingly feeble, gradually recovers perfect health.

In cases where this favourable crisis does not take place, the disease seems to remain stationary for several days, from the fourth or fifth day to the tenth or twelfth; when suddenly some of the abdominal viscera seem to become more involved, the animal suffers much pain, and soon dies. Or, abscesses having formed in the lungs, some of them burst, and pus, having an offensive smell and chocolate colour, is abundantly discharged through the nostrils, the patient ultimately dying from asphyxia. In all these cases obstinate diarrhœa is always present, and has existed for a shorter or a longer period. On a post-mortem examination, the abdominal viscera are found to have been more or less inflamed; the double colon and cœcum are of a dark colour, their mucous

membrane is much thickened, of a black colour or ashy grey, and separates easily from the muscular coat. The small intestines but slightly participate in this change. In the stomach are found traces of recent inflammation; the spleen is gorged with venous blood; the liver is sometimes much inflamed, or even softened—at other times it is merely congested. The kidneys and bladder generally partake of the inflammation, but the single colon and rectum seem to be less affected as they proceed onwards in their course.

The lungs, if not the seat of disease (in which case extensive abscesses have been formed), are found in a state of congestion, and filled with venous blood. The parenchymatous structure is but little altered, but the air-passages exhibit indications of violent inflammation, the mucous membrane of the trachea and bronchial tubes being in many cases in a state bordering on gangrene, black, and easily separated from the subjacent tissues: this alteration becomes less marked as we ascend in our examination towards the mouth, although the pharynx has generally been much inflamed. The heart is filled with venous blood, and with the whole of the muscular fibre of the body is pale and flabby. The brain and spinal cord I have not examined. The mortality from this disease in my practice amounts to nearly one in twelve. On inquiring into the general mortality of horses compared with the previous year, I find an increase of eighty-nine on the last quarter of 1844. In one establishment of slaughterers, the numbers are as follow:—

1843.	Oct. 258..	Nov. 288..	Dec. 219....	Total 765
1844.	Oct. 288..	Nov. 327..	Dec. 239....	Total 854
				Increase 89

Treatment.—This should by no means be too active. Bleeding is not indicated, and in the majority of cases it does harm. Purgatives, particularly aloetic compounds, are to be avoided altogether, as the smallest doses will often cause violent action. The patient should be allowed an airy, loose stable, if possible, with warm clothing and plenty of thin gruel slightly acidulated. In the beginning of the attack, small doses of the nitras potassæ in solution, with, perhaps, an addition of spiritus ætheris nitrici, according to the case; or the liq. ammoniæ acetatis, with the extractum bella-

donnæ. In those cases where the pulse is strong, the digitalis purpurea will be found very useful; but this must never be pushed too far, as debility soon supervenes, and in large-sized animals this is most troublesome to remove. Tonics must be early employed: the best and safest are the vegetable bitters, such as the anthemidis flores and gentiana radix. The mineral tonics are not advisable, on account of the irritation induced by them in the mucous lining of the alimentary canal. If the diarrhœa be great, opium with the vegetable astringents, as catechu, kino, and oak bark, should be given. In those cases in which the stomach is much disordered, the alkaline carbonates are indicated. Counter-irritants to the throat, chest, &c., will be very useful, in particular where there is an early tendency of the disease to attack the lungs. I have given the ammoniæ hydrochloras in doses of two drachms three times a-day with very beneficial results. The action of this salt seems to be on the mucous membranes, their secretion becoming more abundant, thinner, and of a healthy colour; it also promotes the alvine evacuations and alters their character, while it increases their quantity: it would not, however, be advisable to give it in cases where violent diarrhœa or increased arterial action exists. The food should be of good quality, small in quantity, and easy of digestion; consisting of carrots, malt, scalded oats, and meadow hay. The state of convalescence lasts from ten to twenty days, according to the severity of the attack.

In conclusion I would observe, that the name influenza, or, what is better, *influentia*, which, I believe, was first applied to this affection in 1836, is any thing but appropriate to the affection it is intended to designate; neither is it easy, taking the whole of the symptoms into consideration, to class this affection properly. The continental authors do not describe it, but their *fièvres gastric, bilieuse, muqueues*, and *adynamic*, have many of the common characters of influenza.

If we refer to the soreness of the throat, the intense redness of the mucous membranes of the mouth, &c., we may trace some resemblance to scarlatina of the human subject. On the other hand, the pain and stiffness of the limbs would place it among rheumatismal affections. I have no doubt but that many very severe cases have assumed all the characters of the putrid or typhus fever of human subjects.

Among the causes, we may place the great heat of the foregoing summer, and the fact of the new hay and oats being used much sooner this year than last, on account of the scarcity of the grass. But the principal cause, in all probability, is the cold damp air which prevailed very much in the beginning of the autumn, particularly in the form of heavy fogs, &c., and the sudden and unexpected changes which have since taken place, both in the temperature and hygrometric state of the atmosphere, which have necessarily induced alterations in its electrical condition: whether any miasm or organic exhalation may be floating in the air, giving rise to this disease, I am not prepared to state.

2.—ON INFLUENZA IN HORSES.

By Mr. W. GARRARD.

I AM at a loss nosologically to place the disease which has received the above name. Fever, of a typhoid character, seems one of its most prominent features; and that it is epizootic I have no hesitation to affirm, for, in every instance where one horse has been attacked, others in the immediate neighbourhood have become affected. I consider I have witnessed it in two forms—a mild and a more aggravated one. In the former the early symptoms are, loss of appetite, dulness, slight cough, yellowness of the buccal membrane, the conjunctival and Schneiderian membranes being of a similar hue, and rather more vascular than natural; pulse and breathing accelerated, the latter but slightly so; the bowels constipated, the fæces being voided small in quantity, buttoned, and covered with mucus; extremities and surface of the body alternately hot and cold; dry state of the skin, with prostration of muscular power and spirits. In the early stage our treatment has been very simple; consisting in removing the patient to a comfortable and well ventilated box, regulating his diet, attending to the warmth of the body and extremities, accompanied with the administration of gentle laxatives, febrifuges, &c. After the bowels have been sufficiently acted upon, and the febrile symptoms subdued, mild stimulating tonics have been given with great advantage. Under such treatment these cases have soon become convalescent.

In the more aggravated form the symptoms are severer from the onset. At the period we have been called in we have generally found the countenance very anxious, the respiration amounting to sixty or seventy in the minute, and the pulse about eighty or ninety, but of a very feeble character; the animal in most instances refuses all kinds of food, and appears stiff and sore; evinces great disinclination to move, and in many cases will stagger and tremble, as if he were about to fall; visible mucous membranes considerably injected—on the Schneiderian membrane numerous inflammatory spots are perceptible (petechiæ)—skin hot and dry—ears and legs alternately hot and cold, or, what is more frequently the case, one hot leg and three cold ones, or the reverse—buccal membrane yellow—tongue covered with a brown fur—secretion of the mouth very clammy, and emitting an acid odour—bowels constipated, what fæces are voided being very hard, dry, and encoated with mucus. The greater number of cases are attended with a very distressing cough, which comes on in paroxysms; the horse will give one full, bold cough, followed by two or three shorter ones, shake his head, and appear almost choked; the secretion of urine is scanty, and very high-coloured. If the above symptoms are not speedily relieved, the pulse rapidly increases in number, becomes extremely feeble, and ultimately quite imperceptible at the jaw—the extremities cannot be kept warm—there is an apparent disgust for all kinds of aliment—the Schneiderian membrane assumes a very dark hue, almost approaching to black—and the general debility and irritability increase, until death closes the scene, which generally takes place about the sixth or eighth day; at least, such was the case with those we have been unfortunate enough to lose.

The post-mortem appearances were those of general inflammation; indeed, scarcely a texture in the body could be said to be wholly exempt from inflammatory action. The whole of the alimentary canal presented an inflammatory blush; the cuticular coat of the stomach would readily separate from the subjacent textures; the liver might be easily broken down by slight pressure of the finger; the lungs and heart were considerably inflamed, and upon the pleura costalis I observed many spots of ecchymosis: the fauces and larynx were very much inflamed, as might be expected from the peculiar cough which in most cases

was present; and the bowels contained little else but fluid of a very dark colour.

In the treatment of these cases our object has been to guide the disease, if I may so express myself, to its termination, rather than adopt such active measures as might be supposed to cut short the attack, believing it to be of that nature which will run its course, do all we may to oppose it. We have not had recourse to blood-letting in many cases, as the state of the circulation at the time we have been called in contra-indicated the necessity of such a measure being adopted; nevertheless, I think, if the cases were seen at an earlier period, a small blood-letting would have been advantageous. In every instance in which we have had recourse to it, the patient has been attacked the time we were on the premises; and several similar instances occurred at one large establishment, where so many horses fell sick in regular succession, that either Mr. Draper, or myself, was requested to be in constant attendance. After getting the patient into a comfortable box, well ventilated, we generally give a dose of laxative medicine, consisting of hyd. chlor. ʒss, cum aloës ʒiss ad ʒij, followed by a diaphoretic draught:—℞ Spt. æth. nitr., spt. æth. sulph. comp. ãã fl.ʒi, liq. ammon. acet. ʒiv ad ʒviii, tinct. lavand. comp. fl.ʒss; M. ft. haustus; which we find has a very beneficial effect in establishing the balance of the circulation, and producing a general warmth of the body and extremities. I know that actual diaphoresis in the horse is denied by most persons, nevertheless I am persuaded we can produce something very nearly approaching to it. In order to effect this purpose, we have the body warmly clothed and the horse's legs immersed into a bath-tub filled with water, as hot as he can bear it, and allow them to remain in fifteen or twenty minutes; after which they are rubbed dry as quickly as possible, and warm flannel bandages are applied the whole length of the legs. The box should be well bedded. You will perceive our dose of laxative medicine is small, and we rely in most cases upon the subsequent administration of enemas; because a stronger dose of purgative medicine than the above would be attended with danger, the bowels in most cases being more easily relaxed than kept in that state.

Should the above draught and warmth to the extremities raise

the pulse, so as to enable us to bleed, we do so; but, as I before stated, we have failed to produce such an effect, except when we have been in early attendance. Sedatives are given, as circumstances may indicate: our favourite agent is belladonna, with nitrate of potassa, given in sufficient doses to keep up an action of the kidneys. Counter-irritation to the throat and whole course of trachea, also to the sides, if circumstances lead us to infer the lungs are much involved, is likewise had recourse to. The counter-irritant we employ is the ung. hyd. biniodidi, which we find produce more infiltration into the cellular membrane than any other compound, provided it is properly prepared and applied; at the same time it is a neat, clean application.

With this treatment the accelerated respiration, cough, and other violent symptoms, will often subside in a remarkably short space of time; yet they too often return again and again, and at every return the extreme languor and nervous irritation seem to increase. In many instances, after leaving the patient apparently much relieved, we have been hastily summoned by the groom, he stating the horse to be dying. We have returned, and found him blowing, his head hanging down, nostrils dilated, legs and ears deathly cold, a peculiar rattle in the throat, twitching of the muscles of the body, and subsultus tendinum of the fore extremities. Under such circumstances we have again had recourse to the warm bath to the legs, and the administration of a diffusible stimulant; and where the nervous irritability has been very great, we have found considerable benefit from calomel and opium given every three or four hours; at the same time we continue to administer diffusible stimulants with diuretic agents.

Hitherto I have said nothing about diet, which I think a very essential point in the treatment of this disease. Until the bowels are relaxed we allow no kind of dry food whatever; in fact, in most cases the animal will not take any. A little boiled wheat, with bran mashes, may be offered, or any of the succulent roots, with gruel, or white water, to drink. As soon as the bowels are relaxed, and the acute symptoms somewhat abated, we endeavour to induce the animal to take as much nutriment as possible: the quantity of boiled corn may be increased, and a little good hay, with carrots, &c., given; regulating the diet so as to get plenty of support into the system, at the same time keeping the faeces

in a pultaceous state. But, in many cases, all kind of food is obstinately refused: the bowels, for twelve or twenty-four hours, will act more than desired, then cease altogether, and, although the bowels cease to act, fluid may be heard continually rumbling about in the intestines: under such circumstances we have plenty of well-boiled gruel horned down every four or six hours, and give a bottle of port wine every eight or twelve hours, with doses of ammon. carb. and pulv. zingib. every six hours. By such measures we have succeeded in completely rallying cases which, to appearance, had sunk below all hope of recovery.

Doubtless, many members of the profession will question the propriety of our treatment, seeing we have been pretty liberal with stimulating medicines under circumstances where inflammatory action was unquestionably going on; yet it must be borne in mind, that that inflammation was not acute, but of a sub-acute character, and attended with extreme languor and great nervous depression, which appeared to be rapidly exhausting the vital powers. Had the depletive system been carried to any great extent, I feel no hesitation in saying the result of our practice in this affection would have been widely different; for, out of eighty cases treated, we have only lost four—two of which were subjects of previous pulmonary disease, and one presented extensive disorganization of one kidney, which must have been the result of diseased action going on for a considerable time.

I am,

Melbourne, Derbyshire. Your's, &c.

3.—ON INFLUENZA IN HORSES.

By Mr. T. WRIGHT.

INFLUENZA is a disease to which our most valuable patient, the horse, is peculiarly susceptible; and although it is not generally described as being a very fatal malady, is still one which demands our strictest attention, in order to avert as much as possible the annoying and deteriorating effects too often produced on the system by its insidious ravages.

As it is my intention in this paper to consider more particularly those points connected with this disease of most importance to us in a practical point of view, I shall waive all further prefatory remarks, and at once proceed to an investigation of its

Causes.

Numerous are the opinions that have been advanced in order to account for the long-continued existence of this disorder; but, from the exceeding variability of the circumstances under which it is found to make its appearance, they have all been more or less objected to. It is produced by causes seemingly of the most opposite character; affecting indiscriminately both the old and the young; animals in the field or in the stable, at rest or at work; and often when the system is under the influence of the very medicines to which we should have recourse in our endeavours to combat it.

Mr. Sewell, in an essay read before this Association in the year 1836, stated as his opinion, that the noxious vapours given off during volcanic eruptions might become so diffused through the atmosphere, that, although not sufficient in quantity to enable us to detect their presence, yet, when inhaled, they would act on the system in such a manner as to produce influenza. Mr. Karkeek also seems inclined to favour this opinion.

Now, that many of the epidemic and epizootic diseases which have been known to prevail at different periods, in this as well as other countries, have their origin in the effects produced upon the animal economy by the inhalation of those mephitic vapours, it would be a fallacy to attempt to deny; but, still, I cannot reconcile myself to the opinion that the disease to which we affix the name of influenza is at all dependent on this source for its development; for, if this is admitted as its cause, how are we to account for the fact, that any variable condition of the atmosphere, such as sudden changes from cold to heat, and dry to damp, is sure to be followed by many cases of this affection?—and, if volcanic emanations had any influence in its production, their effects would long ere now have passed off, by the known tendency which gases have of becoming equably diffused: instead of which, we find the same disease to exist now that existed in the middle of the last century,

and has continued to do so with some slight modification ever since that period.

Much has also been said respecting the agency of miasmata or malaria in producing this disease, but nothing satisfactory can be explained with regard to it as a cause; and when we take into consideration the fact that horses being placed in situations in which the presence of miasmata is altogether unknown, or at least unsuspected, have become affected, whilst others situated in districts well known for their power of producing miasm have altogether escaped, we shall not be induced very readily to accept this as a cause of its production.

Now, it is a fact that cannot be disputed, that influenza is an invariable attendant upon any marked changes in the condition of the atmosphere, and this without the slightest respect to any particular season. It is upon the knowledge of this fact that I now presume to direct your attention, more particularly than has hitherto been done, to a consideration of the influence of the different electrical conditions of the atmosphere upon the systems of different animals, as being the disposing cause of this disease. We know that electricity produces different effects upon different persons, and also upon the different states of the constitutions of such persons; we also know that all animals possess a certain share of electricity, which electricity has many important offices to perform in the animal œconomy, particularly in the function of secretion. Together with this, it has been proved that the atmosphere in an ordinary state is in a positive state of electricity, and when moisture, rain, snow, or sleet, is present, that its condition is altered to the opposite state, and therefore it becomes in a negative electrical state. Now, if we look at the very acute sensibility displayed by the horse, and the extraordinary irritability of his nervous system, which is known to render him more susceptible of sympathetic fever and tetanus than any other animal, we shall not be surprised to find that any cause acting so as to rob his system too suddenly of any part of its natural stimulus should be productive of the most serious results, by causing a partial obstruction to the performance of the natural functions of the whole of the organs of his body, a state of things most conspicuously developed in the first symptoms of influenza. And if what I have said be correct, it may be accounted for in the following manner:—

first, that during the settled state of the weather the system is continually producing electricity, which, from the positive electrical condition of the atmosphere, is but slowly given off, and therefore its stimulating effects are imparted to the nervous system, and thus the secretions are carried on healthfully and with vigour. Secondly, a change takes place in the atmosphere, and it becomes by either of the abovementioned causes changed into an electro-negative condition. It now speedily conducts off the electricity from the body; the healthy stimulus is thus lost to the nervous system, and, if the constitution is not in a condition to support this loss with impunity, prostration of the vital powers must, to a great degree, as a natural consequence, be the result. And here I leave my view of the predisposing cause of this disease.

We will now consider the

Exciting Causes.

These are said to consist in any sudden exposure to wet and cold, extreme exertion, change of diet, taking up from grass to the stable without due preparation, &c. Wounds, the application of blisters, &c., seem also to bring about an attack, which is generally found to aggravate the local disease. It was a knowledge of this fact that induced the late Mr. John Field to suppose this disease to be of an erysipelatous kind. I have also known it to supervene upon the effects produced by a common dose of purgative medicine, but its appearance under those circumstances has not been of such frequent occurrence as to induce me to pay any particular attention to them as exciting causes; the liability to an attack, in my opinion, being as great without as with their presence.

The next and more important division of our subject will bring us to a consideration of

The Symptoms.

The first symptom manifested by the patient on the appearance of influenza is a partial loss of the appetite, after which he is observed to perspire more than usual at his work, looks dull, and in a few days rejects his food altogether; he next shews evident signs of weakness; his eyes become clouded, and now and then he is heard to cough; effusion takes place into one or both upper eyelids,

and the tears escaping over the under one run down upon the cheek; soreness of the throat is now observed to be present, for when he attempts to drink, instead of swallowing any quantity, he will gulp it, and let it return again; he picks his hay and slowly masticates it, without however attempting to deglutate it; his head is protruded, and the slightest pressure of the larynx excites a cough, which appears to be performed with great pain; the coat loses its soft feel and looks dry; the pulse is generally about sixty, but of a very peculiar character: if a slight pressure is applied to the artery by the finger, it feels bounding and full; but if we impart to it any considerable amount of compression, we shall find it to become obliterated much more readily than in an inflammatory disease. The mouth is hot and dry, the dorsum of the tongue is furred, and patches of scarlet appear on its sides; the Schneiderian membrane is very red, and often covered with mucus; a slight discharge of a thin watery fluid escapes from the nostrils; the conjunctiva is of a more or less scarlet colour, and tinged with yellow; the extremities, although mostly warm and comfortable, are in some instances of an icy coldness; the urine is high coloured, and small in quantity; the fæces are scybalous, and frequently voided.

We may now fairly conclude that influenza is established in its purest form, and our attention must henceforth be directed to its terminations. In about two or three days an alteration takes place, when the symptoms either gradually disappear or increase in violence. The first is its most frequent course, when a copious discharge will take place from the nostrils; the appetite will return, but will remain for some time delicate; the animal will look better in his coat, and appear altogether more lively, but still be very weak. When, however, instead of improvement, we find the reverse to obtain, we may expect that either acute catarrh, pneumonia, or pleuritis, will follow, although I have seen cases wherein the prostration of strength has been so great that the patient has gradually sunk from exhaustion, without the slightest appearance of any local determination on a post-mortem examination.

Acute catarrh is its most frequent sequela. It is known by an exacerbation of all the preceding symptoms: the nose becomes protruded, and the neck is fixed in one position; the pulse is slightly increased (probably from the pain), and the respiration is

somewhat accelerated from the obstruction existing in the air-passages; a discharge takes place from the nostrils, consisting of pus and mucus in large quantities; and the Schneiderian membrane is much reddened and inflamed: the appetite is sometimes very good, but the patient is not able to swallow from the excessive pain that accompanies the act. When the disease locates itself in the parenchymatous structure of the lungs instead of the fauces and larynx, the patient will look much dejected; his eyes become almost closed, his head hangs down, and he will stand as if permanently fixed; the nostrils will be dilated, and a slight heaving of the flanks is to be observed; the pulse is quickened, and the discharge from the nostrils ceases; the membranes lose their scarlet appearance, and become pale and yellow.

The most favourable symptoms here to be observed are, a copious nasal discharge, and the legs, which have hitherto been very cold, to become warm and œdematous.

When the pleura is more the seat of the inflammation than the substance of the lungs themselves, there will be the presence of that double respiratory effort so peculiarly characteristic of this disease, and an evident flinching on pressure being applied to the intercostal spaces: this generally ends in hydrothorax, and which may be known to have taken place by the sudden acceleration of the respiration, and the quickened and feeble state of the pulse.

Treatment.

My treatment has generally consisted in giving at the onset sol. aloes ʒij ad ʒiij, in order to bring about a relaxed condition of the bowels. The action of this drug in this affection is very quick, it frequently producing the desired effect in ten or twelve hours; it will likewise cause a certain degree of nausea, which is also very desirable. I then, in order to meet the increasing debility, and to reduce the redundancy of fluid in the blood, administer daily doses of tonic, diuretic, and diaphoretic medicines, combined; such as potass. nitras, liq. amm. acet., with gentian. rad. et pulv. zingib. If the pulse be full, and the other symptoms do not forbid the detraction of blood, I at once have recourse to venesection, and thus, in my opinion, render an attack of inflammation of the lungs, or their investing membrane, less likely to follow; but remember, I only do this in the very first stage.

I now rely entirely upon the efficacy of the daily repetition of the above-named medicines—and it is seldom that I have cause to change them for any others—until the disease has worn itself out, and the time for the administration of tonics alone has arrived. I, however, carefully watch the progress of the disease; and if inflammation should shew itself in any vital organ, I at once have recourse to venesection and counter-irritation, with the administration of nitras potassæ et antim. pot. tart., in doses according to the severity of the attack. When the inflammatory stage has subsided, and all fear of a relapse has passed away, I then commence a course of tonics, with which I continue until convalescence is perfectly established; taking care to supply the patient with good nutritious diet.

The best counter-irritants we can employ are the acetum cantharidis and setons. By the frequent rubbing in of the first we can produce irritation almost to any extent, and it will be found greatly to facilitate the suppurative process excited by the setons when it is applied with them.

The appearance of serous effusions externally, no matter in what situation, is always hailed by me as a favourable symptom, for I find that on their being produced the other symptoms abate and disappear. The best method of treating those enlargements consists in the use of hot fomentations and slight scarifications.

Post-mortem Appearances.

The appearances presented by those animals that die of this disease, previous to any local determination of it, present no organic lesion whatever in any part of the system—at least, so far as I have been able to discover; I have therefore attributed their death to excessive prostration of the vital powers, from which the system was unable to recover. I have not had an opportunity of investigating a case of death in which catarrh alone has been present, and therefore am unable to give to you any description of the appearance of the parts in which this disease is seated.

The lungs of those patients which die of pneumonia as a sequela of this disease are black from congestion of blood, and in some cases the existence of numerous incipient tubercles may be detected.

In pleuro-pneumonia, or where the pleura has been implicated in the inflammation, effusion into the thorax, and that to a considerable extent, is often found: the lungs are collapsed, and the pleuræ pulmonalis and costalis covered with flocculi of yellow lymph.

I remain,

Your's, &c.

Mr. E. Braby.—On rising to express my opinion on this subject, I feel I have but little to say, as in most particulars I coincide with those whose essays have just been read. The cause, however, of the present disease I cannot attribute to any hygrometric or thermometric changes in the air, as the average variations during this and former years have not presented any such striking difference as would, in my opinion, warrant that conclusion. The preceding year, which was unattended with disease, was no less unsettled in this respect than the present one, which has been marked by the appearance of influenza. I will not assert that the disorder originates in some peculiar electrical condition of the atmosphere, too subtle for our senses to take cognizance of; but, swayed perhaps by my inability to discover any direct influence, I am certainly inclined to favour that opinion, although at present I may not be prepared to support it.

Of the various breeds of animals which suffer from this affection, the lighter kinds, I have remarked, are not so severely debilitated by its attack as the heavier horses. This I do not attribute to the mere difference of condition. Cart-horses are generally kept in a plethoric state; but though plethora disposes to an inflammatory termination, the reverse I have observed induces a susceptibility to be attacked. I would rather trace the debilitative effect of the disease upon the heavier breed of horses to the greater amount of cellular tissue which enters into the structure of those animals, the cellular tissue and mucous membranes, in my opinion, being the parts which influenza more particularly affects. And another reason why the heavy draught-horse has this disease more severely than the lighter horse is, that we do not discover it in its earliest stages. Being an animal that is accustomed to go slow, any disease or indisposition is not so soon detected in him as in the lighter animal, because the rider or driver of the latter immediately per-

coives that the horse is unwell. If, therefore, the disease is attacked in its earlier stages, it does not often run on to any alarming extent. The average number of deaths under the prevailing form of influenza I have found to be one in twenty; and the symptoms in which we seem very nearly to agree, in cart-horses (for to that particular kind of animal I must be understood more especially to allude), to be, in the first instance, stiffness of the extremities, attended with considerable rheumatic pain, sore throat and total loss of appetite; while, as the case proceeds, more or less affection of the thoracic and abdominal viscera becomes apparent.

My treatment has been to have the animal as soon as possible removed from the place in which he was attacked to some open shed or box, where he may be allowed to move about, and to take care the body be warmly clothed and the legs frequently dry rubbed. Every post-mortem examination having shewn me the fauces and trachea were considerably inflamed, I must so far differ with Mr. Ernes as to regard the disease having rather a tendency to affect the larynx than the lungs. The throat is almost invariably affected; and this part, together with the chest, I therefore order to be stimulated with ol. canth., and afterwards administer a draught composed of ol. lini Oss., spt. æth. nit. ʒij, tinct. opii ʒiss. This, with vegetable tonics, combined with potassæ nitras, or potassæ carbonas, in the after stages of the disease, I have experienced to be all that is necessary for the milder forms of influenza. I must, however, be allowed to differ with those who recommend the exhibition of aloes in this disease. That drug, in all its forms, when treating a case of influenza, I would avoid as I would a poison. In six cases where I ventured to give only ʒij of the aloetic mass, four of the horses died of hypercatharsis; and I am firmly convinced that to the heavier breed of horses aloes cannot with safety be given at all in this disease. Few cases demand medicines that have a sedative action, and blood-letting I have adopted only in a very few instances, and then during the very earliest stage of the disease.

In the more severe cases, if the symptoms do not abate, when the pulse is between eighty and ninety—and it is thus high not unfrequently—then I have employed powerful sedatives, such as digitalis combined with belladonna, and from their union have

observed the best results, the pulse being lessened in frequency while it was increased in tone. Should pulmonary symptoms appear, I have introduced setons in the chest, and have also employed a mustard cataplasm as a stimulant. The appearance of œdematous swellings towards the termination I have always regarded as a favourable symptom.

Mr. H. Hallen.—If I have not mistaken the last speaker, he would insert a seton after the application of a local stimulant. Is not the skin by the action of the counter-irritant rendered hard, and the passage of the seton consequently made more difficult? Might not the effect be more quickly produced if the seton were first introduced and the blistering compound applied subsequently? Then, as to the length of the seton. Roaring is to be feared as one of the sequelæ of influenza, and, as a check to this, setons are assuredly serviceable. I have passed a seton from the neck to the chest, and I find that on removal of this seton the suppurative action speedily stops. One of the authors of the Essays read recommends the use of flannel bandages to the legs. The bandages generally employed, I may observe, are by no means large enough for their intended purpose. I prefer them of such a size as will not only envelope the leg, but also extend some way above the knees and hocks. Often, after the legs have been fomented, have I ordered the application of two sets of such bandages, and the result of this practice is the prevention of the parts becoming chilled by evaporation. After the legs are thus enveloped, if I place my fingers under the flannel, the skin will be felt warm and comfortable. It is also my practice to take care that the legs after being fomented do not remain for even a short time uncovered; and so particular am I in this respect, that I have had four men to bandage the four legs. Another essential point I hold to be the taking off of the shoes, as thereby pressure is removed from the wall of the foot, and the circulation of the blood aided. I have found this to facilitate the recovery of the animal, and after it have always observed the horse to appear easier. When taking off the shoes, I at the same order the horse to have an abundance of good short litter on which to stand, taking care that it is so short the animal cannot by pawing scrape it up. As to the administration of aloes, I perfectly agree with Mr. Braby,

Having had some experience in the treatment of this disease in Her Majesty's service, I should fear aloes as I would a poison, on account of its tendency to produce superpurgation.

Mr. Braby.—Again, I must request it will be remembered that my remarks apply more particularly to the heavy breed of horses. It is the more important to bear this in mind, as I am of opinion that influenza assumes a different character when it attacks the lighter horse.

Mr. Hallen has remarked upon my use of blisters. I prefer, however, the application of mustard to cantharides to the skin, which I think acts best when mixed with warm water to the consistency of cream, and is then well rubbed in the contrary way to the hair. The reason of my preference is, I have experienced its action to be quicker, and the effect, consequently, to be more immediate and marked. As to setons, I have not employed those agents of a greater length than from eight to ten inches, and should fear to introduce them to the extent implied by Mr. Hallen's observations. After disease has disappeared setons often continue to suppurate, and this circumstance is an objection to their extensive introduction in animals which, on account of their size and structure, are incapable of withstanding that degree of depletion which might be altogether harmless in the lighter breed of horses, to which Mr. Hallen's remarks, I opine, more especially referred. Neither could I hold myself warranted in the use of setons as a preventive to roaring, however I might employ them as remedial agents when roaring had supervened. I have now a case in which roaring has supervened consequent upon inflammation of the glands. The virulence of the disease, however, has in that case been subdued, and with it the affection to which it gave rise is now fast disappearing, without the aid of setons. Among heavy horses the possibility of such animals becoming roarers has not been with me a source of any anxiety. Such a consequence is far from probable. In the early stage of influenza the great nervous irritability which affects these animals demands more serious attention than the remote chance of their respiration being ultimately, and then for a time only, impeded. The nervous irritability to which I allude affects the extremities, and assumes all the characters of the acutest form of rheumatism. To alleviate it, I have administered colchicum in all its forms, and with some

benefit, although not quite equal to my expectations. The aceto-us extract, in half-drachm doses, I think the best form in which this drug can be exhibited, and only when nervous irritation is present have I found its administration beneficial.

The use of warm water to the legs of heavy horses I must object to, as however assiduously they may be rubbed after its employment, the heels will continue wet, and inflammation followed by suppuration not unfrequently be the result. Nor can I approve of taking off the shoes of cart-horses: their soles being generally flat, pressure on the sole would create pain, and irritate a system already suffering from morbid excitability.

It is not unusual to have the sole even lower than the frog, and all must have remarked that cart-horses walk without the shoes with far less ease than animals of a lighter make. It is not, therefore, on account of the breaking of the hoof that I object to the practice Mr. Hallen has recommended, but because of the pressure which must result to the sole, and which I cannot conceive any amount or kind of litter can effectually obviate.

Mr. Wright.—Mr. Braby objects to the use of aloes in influenza. May I ask what medicine he would employ to relax the bowels? I have been in the constant habit of exhibiting this drug, and have never seen a case in which any unpleasant consequences have supervened.

Mr. Braby.—In most cases no laxative is necessary; and where an aperient has been required, I have found linseed oil sufficiently active, and milder than aloes in its operation. Many practitioners, no doubt, have exhibited aloes; but it must have been to the lighter horse, on which the effects are by no means so energetic as on the heavier breeds.

Mr. Woodger.—I quite agree with Mr. Braby as to the impropriety of exhibiting aloes during influenza; and, as that gentleman truly states, this disease will rarely admit of any depletion. I gave aloes in one case, which I nearly lost in consequence of the catharsis which ensued. I likewise drew blood in two cases; and of these two, one terminated fatally. There is a tendency in this disease for the bowels to become relaxed without the aid of medicine; and I have had to combat diarrhœa when no purgative had been administered. In these cases in which indications of constipation existed, carrots, mashes, and succulent diet, have

proved in my practice quite sufficient to remove it. During the recent outbreak of influenza in this metropolis I have been called on to attend at least two hundred cases. The description of animals which formed the majority of my patients were such as are classed under the head of "machiners." So prevalent has been the disease, that in some instances there was a difficulty to accommodate the number which, in one stable, were attacked at the same time. It has always to me seemed desirable that the horse suffering under influenza should be removed from the stable which healthy animals occupied. Where it could be obtained, I have always placed the patient in a loose box; and, as a separate box could not always be afforded every individual, in one instance I placed sixteen horses suffering from influenza in a large shed or barn, which I procured for the purpose, at Chelsea. I found the animals did not injure each other by being thus put together, but rather benefitted each other, and the small amount of fatal terminations which resulted from this practice I may, perhaps, be allowed to appeal to, in order to convince the members of its propriety, as I have not lost more than one in a hundred cases.

Mr. Rice.—In all the cases of influenza which have fallen under my care, the disease has assumed an aggravated aspect. In each case, at the onset, I gave aloes in ʒiss doses, and certainly witnessed no bad effects from it; I, therefore, cannot agree that aloes is so dangerous a drug in influenza as I have this night heard stated, although I fully admit, that a horse when suffering under that disease requires the system to be supported, and this I have endeavoured to do by horning down arrow-root gruel, in which was dissolved a little nitrate of potash. In some of the cases to which I have alluded I bled to the extent of two quarts, and I am happy to say, that in every instance the patient recovered.

The Patron.—The number of deaths which have occurred in the practice of Mr. Woodger are certainly exceedingly few, and speak well for the plan he has pursued. I have heard of a stable in which one horse out of every four attacked was lost. Some practitioners have had but few cases, and yet out of these have lost the majority. Others, among whom I know Mr. Hallen to be numbered, have had many, and lost but few. The mode of treatment adopted by the successful practitioner should receive especial attention, and every new practice introduced by him

ought to be deliberately discussed, and patiently considered. Among the "new lights" which have this evening been placed before us, none, perhaps, is more striking than the unusual custom which Mr. Hallen has pursued, and that with good effect, of taking off the shoes from the feet of horses affected with disease. Inquiring into the effect produced upon the animal economy by the contact of metals, we may, perhaps, best arrive at a sure conclusion, by asking, What has man experienced? During the voyage which Sir John Ross made to the North Pole the sailors found they were unable to endure even the nails which in this country are commonly driven into the soles of shoes. In Canada, also, men are careful that no metal is introduced into these coverings of their feet. We have not yet learned to apply the instruction which facts of this kind should convey; but we must not forget that the horse's shoe is of iron, and is in immediate contact with a part of the body.

It is true, that the dry and insensible, thick and resistant horn of the horse's hoof little resembles the soft, sensitive, and yielding covering of the body; and we should not, from the contact of the horse's hoof, expect a result so marked in its effect; yet shall we, therefore, infer no effect ensues? Let the answer be such as experience will afford. Take the shoes off from both feet on one side, and let them continue on the feet of the opposite side; note then the temperature of the hoofs, observe the signs by which the horse expresses a sense of ease, and from the result draw the conclusions, which, I in no way doubt, will accord with those Mr. Hallen has expressed. For years it was my custom, when quitting London during the heat of the summer, to have the shoes removed from the feet of my own horses, and I never had any cause to regret the practice.

The President.—During the progress of a debate it often happens that remarks which, when first made, appear trivial, are, upon consideration, found to be of importance. An instance of this has occurred to-night, in the observations made by Mr. Hallen respecting the taking off of the shoes of horses suffering from disease, when it is most desirable that the legs should be kept warm. This practice, certainly, is of some advantage, and it is interesting to ascertain the cause of the chilliness to which the extremities of our patients are liable. We at once attribute this to a tardy state

of the circulation. The veins of the horse's feet are numerous and superficial, and they are singular from possessing no valves by which the onward current of the blood in other vessels of this kind is greatly facilitated. Within the veins of the foot intermittent pressure determines, to a certain extent, the flow of blood. When the shoe is on the foot, the entire weight of the body is supported by the inferior surface of the wall; but remove the shoe, you then take off a fetter, and the frog coming down upon the ground, the elasticity of the horn is allowed to perform its natural function, thereby increasing the force of the circulation in the foot. I therefore think the observations made by Mr. Hallen on this, which to many might seem a trivial matter, of importance, for it is not only applicable in the treatment of influenza, but also many other diseases. While asserting this, however, I am not insensible to the force of the objections raised by Mr. Braby; but, in the application of a remedy, the judgment of the practitioner must always be exercised, and a practice which I would recommend to be followed in the treatment of the lighter breed of horses, I can readily admit might, in the case of heavier animals, whose feet are mostly mis-shapen, and their soles either flat or bulging, be attended with very serious consequences.

Mr. Rodd.—The general agreement as to the nature and forms of this disease is highly satisfactory. There appears to no difference of opinion in this particular, except what might be expected to arise from the fact, that some practitioners have seen the malady in the heavy cart horse, while others have attended horses of another kind, in which the impressions of the disease have been more or less varied, according to the peculiar temperaments and idiosyncracies of these animals. With regard, however, to the treatment, there seems to exist some little discrepancy. I yesterday visited an infirmary situated in this metropolis, where many cases had been treated. The person who shewed me round the stable was not the principal; but he informed me that the practice at that establishment had been somewhat modified by the results. At first, aloes had been given, whereas now only a slight febrifuge was administered, consisting of the pot. tart. ant. et nitras. potassæ, and small blood-lettings were had recourse to. That person also described to me the post-mortem appearances, among which he named an inflamed state of the lungs; but it is probable he was

mistaken in this. We must remember that it is often difficult to distinguish betwixt congestion and inflammation, except in connection with symptoms during life; and the symptoms here are not such as would lead us to look for any active determination to the lungs. There is no organ in the body so often found after death in a state of engorgement as the lungs. This often takes place from merely passive congestion, or from asphyxiating causes during the last moments of life, and sometimes even after death; and the pathological characters in these cases are all alike, and in no respect different from cases of pure inflammation before any change of structure or consistence has taken place. It is equally difficult to say what is produced by vital and what by mechanical causes. For my own part, I look upon influenza as a febrile disease, in which the mucous membranes are affected; and as we know that when the mucous membranes are diseased diarrhœa is very easily induced, I agree with those who think it better to be cautious in the use of aloes, though I would not altogether proscribe that drug, as there are, undoubtedly, cases in which it acts beneficially. The mucous membranes of young animals (and a great many young horses are affected with the influenza) are much more delicate and susceptible than those of adult ones. Then, as to the causes; notwithstanding all that has been said and written about epidemic influences, we are still in the dark on this subject. If epidemic diseases proceeded from miasmata or gases dissolved in the air, the disease would proceed collectively; whereas the reverse is the case—those attacked being often at a certain distance one from another. Raspail believes that the microscopic germs of plants are raised from the ground by the wind, and, entering the system by the external openings of the body, constitute by their germination what are termed epidemics; but were such the case, I imagine we should be favoured with them much oftener. Others suppose the morbific matter to exist in the atmosphere, likewise in the solid form, and to engender disease by the propagation of a species of decomposition or motion in the animal tissues, similar to some such decomposition or motion existing among its own molecules. Dr. Prout observed, during the prevalence of Asiatic cholera in this country, an increase in the weight of the atmosphere; he remarked, likewise, an acidity in the saliva, even of healthy persons, with an absence of lithic acid in the urine;

and which made him suppose that a disposition to form oxalic acid existed which was referrible to some influence at work in the production of cholera. Such phenomena may have been connected with the epidemic, or were, probably, only coincidences.

Again, the hypothesis that tribes of animalcules are the causes of epidemic diseases has been supported by analogical arguments; but it is quite unsupported by any thing like direct observation. Nor are these analogies free from exception; for, although epidemic diseases in the circumstances under which they appear and disappear certainly do resemble tribes of insects coming and going in the most mysterious and unaccountable manner, attacking whole districts and countries, and even whole quarters of the globe, and recurring sometimes within a few months and sometimes not for centuries; yet is the analogy rendered doubtful and imperfect by the fact, that epidemics sometimes appear in all their virulence in the depth of winter, a season of the year certainly not the most favourable to the production of insects, and the development of life in animalcules. It is highly probable that electrical changes in the air are frequently connected with the production of diseases. The hypothesis, however, which Mr. Wright has introduced to our notice seems to me to be inconsistent with the nature and ascertained laws of the electrical force. It is, doubtless, very natural for us to suppose epidemic influence to reside in the atmosphere, for the atmosphere is the only thing which is common to all places, and is the great principle of all organization. Still it cannot be denied, though some of our notions on this subject are very ingenious, that they are all, more or less, just so many instances of an unphilosophic spirit which pervades the human intellect, tending to the substitution of all kinds of hypotheses when our powers of observation are too limited to discover the truth. If this influence arise from vicissitudes of weather, it should not be ranked among epidemic diseases; for though, like epidemic influences, heat, cold, and moisture reside in the atmosphere, nevertheless, these latter are common and well known causes of disease. Nor should epidemic and epizootic diseases, as appears frequently to be the case, be confounded with endemic and enzootic, or with infectious diseases, the distinction between all these being sufficiently well defined.

The Patron.—The published tables at least demonstrate that the present disease has not arisen from any unusual variations in the

temperature of the atmosphere. The old field of conjecture appears to be over-run with weeds, and a fallow with fresh tillage is here certainly required. None of the causes mentioned by Mr. Robb strike me as approaching to the truth. It requires to my mind a more extended view than any of the authors seem to have possessed in order to discern the fact. Looking back so early as Homer, we hear that when the plague visited mankind, animals were first affected; and the remark them made has been rendered trite by the frequent corroboration it has received. How shall we account for this? Are animals naturally more susceptible? Is their mode of living more enervating, or are their habits such as predispose them to infection? The stimulating diet, artificial domestication and social excitements to which man subjects himself, best answer the inquiry. Then how is it that animals which appear to be placed in a condition not predisposing them to suffer from epidemics are found to fall the earliest victims? If we regard the animal we shall be struck with the position of the body. The beast by day plucks its food from the earth, and at night reposes with its head upon the soil. The nose is, therefore, continually in contact with the ground, and by this circumstance alone can I account for man, who walks erect, being the last to suffer. There are in every mining district hundreds of widows who will testify to the noxious vapours found within the bowels of the earth. As the shaft is lowered so the miner finds the temperature to increase. Heat, then, the mightiest of the chemist's agents, is present in the centre, and the other, water, from the tendency of that fluid to gravitate, can hardly be imagined wanting. Of the decompositions which are hourly taking place within this great central laboratory we know nothing; volcanoes, earthquakes, poisonous caves, and infectious planes, only serve to convince us that the action is incessant. Some gaseous compound is set free, and through the porous crust of the earth it gradually escapes, breeding disease. It may be too widely distributed for chemical tests to detect it; nor can I admit there is any force in the non-existence of any proof of this description. The chemist may not be able to discover any difference in the atmosphere of two localities, yet an individual shall enjoy perfect health in the one, and be constantly subject to disease when inhaling the other. We shall best attain a knowledge of the composition of the subtle poison by carefully watching

its effects, and patiently studying its phenomena. In the mean time, by observing the facts with which it is connected, we may be enabled, in a great degree, to escape its influence. In Glasgow, it has been stated that those of the inhabitants who were compelled to inhabit cellars were the first victims to an epidemic which visited that city, and something analogous to this I noticed in a dairy situated close to London. On account of the expensiveness of the ground-rent, the building in which the cows were kept was divided into stories, and there were, consequently, cows living on the ground-floor, while others resided on the first floor of the premises. The animals which inhabited the lower region were the first attacked, while those living above them never suffered so severely.

[Press of other matter obliges us to withhold the continuance of the debate on this interesting subject—Influenza.]

REVIEW.

THE ANIMAL KINGDOM, CONSIDERED ANATOMICALLY, PHYSICALLY, AND PHILOSOPHICALLY. *By* EMANUEL SWEDENBORG. *Translated from the Latin, with Introductory Remarks, by* JAMES JOHN GARTH WILKINSON, M.R.C.S., 2 vols. 8vo, pp. 1258. London: Newbery, 6, King Street, Holborn; Baillière, 219, Regent Street. 1843 and 1844.

THE publication of these volumes is, in more points than one, no uninteresting occurrence. In fact, they admit of at least a two-fold consideration. In the first place, the anatomical basis on which the views they contain are founded, is supplied directly from the works of the great anatomists of former times,—of those who were the fathers of the organic sciences, whose discoveries were our inheritance, and whose accumulated wealth, recast in the moulds of the present day, furnishes even yet the most passable and purest coin that we have in circulation in our schools of science. In the second place, they attempt a theory of organic nature, and specifically of the human body; and they aim to shew

the connexion of the natural sciences with each other, and afterwards with the human mind, and with human society; in fine, with a philosophy of causes.

It will be impossible in our limited space to give any thing like an analysis or digest of Swedenborg's theory; for this we must refer the reader to the Translator's "Introductory Remarks;" or, if he be desirous of a complete understanding, to the "Animal Kingdom" itself. We shall, therefore, content ourselves with throwing together a few remarks suggested by the perusal of the book, on the two headings into which we have distributed the consideration of the subject: and first we shall speak of the old anatomists.

It is not impossible that certain very scientific people, masters of terminology, profound in the microscope, and for these reasons claiming the high title of "practical men," may here exclaim, "Who *are* the old anatomists? Were there any worthy of the name until light and truth came in with the nineteenth century? Surely, no. For our Bell had not then discovered the distinct origins of the motor and sensorial nerves; nay, the theory of reflex action was unknown; no Kiernan had illustrated the liver, and no Bowman had cleared up the mystery of the kidneys; the cell-theory of Schwann had not then explained our bodily conglomeration; cytoblast and cytoblastema were not in all the pages of knowledge; and, worse than all, mankind had no achromatic microscope, nor, in fine, any better instrument for the discovery of fact or truth than comparatively rude knives and eye-glasses, and were constrained to draw, to a large extent, unlike us of the nineteenth century, upon those poorest, weakest, and most fallible means, the rational faculties."

To this we must reply, that notwithstanding these disabilities, and even in consequence of some of them, there *were* anatomists, and great anatomists too, in former times. Indeed, the names of such of them may be still remembered as have led the way in the discovery of particular parts or structures. The name of Vieussens is handed down to us in connexion with his valve: Winslow is not forgotten by the student when he mentions the foramen of Winslow: Eustachius hangs in recollection by the slender pegs of the Eustachian tube and valve, and Fallopius is equally honoured and fortunate by having a Fallopian tube. Willis is known by a

circle, and Zinn by a zone; Brunn and Peyer, by little glands: Glisson, by his capsule; Morgagni, by his liquor: and Malpighi, by the corpora Malpighiana. This, truly, is the most infinitesimal amount of fame that ever was conceded to greatness: it is about as adequate as if the whole reign of Queen Anne should be set down in history as the period when three celebrated farthings were issued from the Royal Mint; or, as if the record of London should be perpetuated to posterity by a few isolated bricks preserved in some future museum; for these men were as industrious as ourselves in the collection of facts, and far surpassed us in that philosophical spirit without which the successful prosecution of physiology is impossible. Moreover, as the subject was comparatively new to the world, so its first cultivators laboured with a zeal, an energy, and a freshness of mind, such as belong almost exclusively to the youthful period of an experimental science; or such, at any rate, as hardly belong to a time like the present, when the field *appears* to be pretty well exhausted. If the old anatomists are to be characterised by what they did in a comprehensive sense, then we should say, that they were the authors of nearly the whole of the anatomy that is to be found in the anatomical manuals of this day, and that they themselves presented this knowledge to the world in a form that was admirably lucid and systematic. More than this, they eliminated views on physiology so connected as closely to approximate to a rational system, and which, although now extinguished and forgotten, must be reverted to with anxious inquiry whenever the spiral of scientific progress comes round again to that point where men desire to exercise the understanding, and to subordinate the microscope to the senses, and the senses to the higher faculties of the soul. Their views, we repeat it, the order of their treatises, their speculative suggestions, the accuracy of their descriptions, and their living style, strike us with profound respect and astonishment; and, judging them in their own walk, and by the ends they had in view, we feel how little modern science, with all its boasting, has added to the results to which they had already attained. We make this remark especially with regard to their physiology, meaning by the term, the exploration of the causes and uses of the effects and organs that are visible in the body; or, in other words, of the rationale of anatomical facts.

Many causes, doubtless, co-operated to bury the works of these great inquirers, and all these causes may, perhaps, be generalised into two divisions. 1. The defects of the old anatomists themselves. 2. The unworthiness of their successors. We shall not pursue this subject farther, but refer our readers to the short outline of it contained in Mr. Wilkinson's "Introductory Remarks."

The work under review contains numerous extracts from these writers, prefixed, by way of foundation, to each chapter of Swedenborg's Theoretical Analysis or Induction. No modern book, to the best of our knowledge, exhibits so complete a *catena* of their opinions, or will so readily enable the student to form some opinion of their unshaken claims to the attention of the medical world. He may there be re-introduced, with due ceremony, to the venerable Eustachius; to Malpighi, the father of visceral anatomy; to Ruysch and Morgagni, the great purifiers of the anatomy of the schools; to Leeuwenhock, who first seized the microscope as an exclusive field, and devoted himself to it for fifty years with more than modern eagerness; to Vieussens and Lancisi, eminent alike for their systematic knowledge and philosophical genius; to Bartholin, Verheyen, Heister, and Winslow, whose methodical text-books maintained their ground in the European schools for more than a hundred years, and who supplied their successors with much of both the matter and the form that has been handed down to us from them in the various manuals which are now in use; and, finally, to Boerhave, "the common preceptor of Europe at the beginning of the eighteenth century*," and the consulting physician of the world; who gathered up the experience and deductions of ages, in anatomy, physiology, and medicine, and gave it a new and most compact form in one little book, the "Institutiones Medicæ." If the modern inquirer will submit to this re-introduction, he will be in no danger subsequently of thinking that these great writers are only to be remembered as names fixed up to mark out certain courts and lanes and alleys of the body. He will rather learn to regard them as master minds, who were well acquainted with the leading facts of things, and had no slight intuition into their principles and causes.

This part of the history of anatomy is of some interest in its connexion with veterinary literature. The fact is, that in the early

* Haller, Bibliotheca Anatomica, tom. i. p. 756; tom. ii. p. 444.

days of anatomical knowledge, the greater part of dissections were performed upon the bodies of the lower animals. The dissection of the human body was, at first, a comparatively rare occurrence, to which, as to a spectacle, professors and medical men flocked, or were invited, from the neighbouring schools and towns. Hence, human anatomy rose at first from a veterinary basis—from a basis furnished by the investigation of the anatomy of the dog, sheep, horse, cow, pig, &c. Many most important discoveries were made in the bodies of the lower animals. Thus it was, in dissecting the horse, that Eustachius discovered the thoracic duct, which, however, he described inversely, for he was not fortunate enough to trace it to the receptaculum chyli, and the existence of the lacteals and lymphatics was not known in his time. His description is so interesting a piece of anatomical history, that we cannot forbear to quote it from the "Animal Kingdom," (p. 161) where Swedenborg has inserted it at length.

"In the horse," says Eustachius, "from the great left trunk, near its junction behind with the internal jugular vein, a kind of large offset proceeds, which, besides having at its origin a little semicircular orifice, is also white, and full of an aqueous humour, and a little way from its origin divides into two parts, which again shortly afterwards reunite into one that puts forth no branches, but, penetrating the diaphragm, passes downwards at the left side of the vertebræ, as far as the middle of the loins, where, becoming broader, and embracing the aorta, it ends in the greatest obscurity, so that I have not hitherto been enabled to make out its precise termination."

Such having been the basis of human anatomy, it was only by slow degrees that it assumed a pure form, and rested upon its own proper facts. Nearly parallel has been the history of veterinary anatomy, considered as a distinct science. In the first instance it was derived from human anatomy as a basis, and its purification, if it be already purified, must have consisted in the gradual substitution of veterinary in the place of human dissections. A curious organic connexion this between these two sciences, each generating, and generated by each, shewing that knowledge itself marches in a circular, or, rather, spiral progress, in which every end or point attained is but a new beginning.

But we have said enough, perhaps too much, concerning these

forgotten anatomists: something must be said of Swedenborg, or the chief character would be omitted from the drama; and yet, how to speak of him is a question, for Swedenborg is a mystery which in its whole extent a scientific journal is not the place to attempt to solve.

It may be observed, however, that the "Animal Kingdom," although differing *toto cœlo* from the "Bridgewater Treatises," is an endeavour to shew "the Power, Wisdom, and Goodness of God" as displayed in the organic creation. To work out this end Swedenborg has investigated, on entirely new principles, the formation, functions, and uses of the various parts of the human body; deeming, that if the *order* of all these could be rightly seen, the mind would be able to go beyond that common deduction which declares God to exist, and to be good, wise, and powerful, in the same sense in which these attributes are attributable to man; and to have different and higher views of goodness, wisdom, and power, themselves. In fine, his work is not an attempt to lead men out of atheism, but to lift them above theism into revealed religion. In this it differs essentially from every other treatise of apparently similar pretensions.

The view he takes of the body is, to a great extent, mechanical, but then he predicates a mechanism of the fluids as well as of the solids. He applies everywhere the Doctrine of Series. Some glimpses of this important instrument of rational physiological knowledge have been seen by Carus and other writers; and it has been applied by them to the bones. This they have aimed to shew, that all the bones, including those of the cranium, are repetitions of the vertebræ; in a word, that in the bones there is but one principle, and many modifications. Now, Swedenborg has carried this law through the soft parts as well as the bones, and through the fluids equally with the solids. With him every thing is a series, and in a series. The whole of the viscera are a stupendous series, in the higher parts of which (the brain, for instance) every thing goes on that goes on in the lower. Thus the lower are so many legible illustrations of the higher; the diffuse organs of the abdomen and chest are explanations of the concentrated cerebrum. We shall not dwell further on this law, but simply observe that Swedenborg so consistently applied it as to arrive by induction at the existence of an animatory motion in the brain, *synchro-*

sous with the respiratory motion of the lungs; a doctrine which has much to do with the whole of his physiology.

His opinions upon the spleen, the thymus gland, and the supra-renal capsules, are, to say the least, extremely curious, and at any rate consistent with the rest of his theory: how far they may be admissible in modern science, or consistent with it, is another and a widely different question. This, however, we will say, that the amount of mere anatomical knowledge of these organs which has been added to the store since his time, is (notwithstanding Sir Astley Cooper's splendidly printed quarto on the thymus), altogether insignificant; so that Swedenborg may upon these points be almost as well tested by the knowledge of his own day as by that of ours.

Swedenborg's ideas of the uses of respiration are, to our mind, altogether new, and, if true, of great importance as modifying our views of nearly the whole field of physiology. We shall therefore conclude this Review by citing the following notice of them from the "Translator's Introductory Remarks," begging our readers for a few brief moments to forget oxygen, hydrogen, and carbon, or, if that be impossible, to give those necessary elements only a secondary place in their conceptions.

"With respect to the last-named of these offices of the lungs, namely, that they supply the body and all its parts with motion, it is one of the most important discoveries in the "Animal Kingdom," and not less wonderful in its consequences than in its simplicity and obvious truth. If the reader can once succeed in apprehending it, there will be no danger of his letting it go again even among the perilous quicksands of modern experience. It is one of those truths that rest upon facts within the range of the most ordinary observation, and require but little anatomical investigation to confirm and demonstrate them. It is visible in its ultimate effects during every action that we perform, and at every moment of our lives. Perhaps there is nothing in the history of physical science that is more illustrative of the native ignorance of the mind, or that better shews how far we have departed from the simplicity of nature, than the manner in which this grand office of the lungs has been overlooked; particularly when coupled with the fact, that it should have required a great and peculiarly instructed genius, by an elaborate process, to place it once again under our

vision. But nature is simple and easy; it is man that is difficult and perplexed. Not only in the lungs, but in the whole body, the primary office is disregarded, and the secondary substituted for it. It has been supposed that the lungs inspire simply to communicate certain elements of the air to the blood; and expire for no other end than to throw out by means of the returning air certain impurities from the blood. Under this view, their motion is only of use for other things, or instrumentally, and not as a thing in itself, or principally. And yet it is not confined to the sphere in which these secondary offices of the lungs are performed, but pervades the abdomen as sensibly as the chest, and, according to the shewing of the experimentalists, extends also to the heart, the spinal marrow, and the head. It was therefore incumbent on the physiologist to shew what its function was in all the regions where it was present, and to declare its action as a universal cause, as well as its action as a particular cause. Now the motion itself which the lungs originate is their grand product to the system; the inspiration and expiration of the air are but one part of its necessary accompaniments, being performed in the chest alone. Granting that the inspiration and expiration of the air are the particular use of this motion in the chest, what then is the use of the rising and falling which the lungs communicate to the abdomen, the heart, the spinal marrow, and the brain? What office, analogous to respiration, does the motion of these parts communicate to the organs? It manifestly causes them all to respire, or to attract the various materials of their uses, as the lungs attract the air. For respiration is predicable of the whole system as well as nutrition; otherwise the head would not be the head of the chest, nor the abdomen the abdomen of the chest; but the human body would be as disconnected, and as easily dissipated, as the systems that have been formed respecting it. The universal use, therefore, of the respiratory motion to the body, is, to rouse every organ to the performance of its functions by an external tractive force exerted upon its common membranes, and by causing the gentle expansion of the whole mass, to enable the organ, according to its particular fabric, situation, and connexion, to respire or attract such blood or fluid, and in such quantity, as its uses and wants require, and only such. Each organ, however, expands or contracts differently, according to the predicates just

mentioned; the intestines, for instance, from articulation to articulation, to and fro; the kidneys, from their circumference to their sinuosity or hilus, and *vice versâ*, the neighbourhood of their pelvis being their most quiet station and centre of motion: and so forth. In a word, the expansion as a force assumes the whole form of the structure of each organ. In all cases the motion is synchronous in times and moments with the respiration of the lungs. The fluids in the organs follow the path of the expansion and contraction, and tend to the centre of motion, from which these motions begin, to which they return, and in which they terminate. The lungs, however, only supply the external moving life of the body; but were it not for them, the whole organism would simply exist in potency, or, more properly speaking, would cease to be; or were it permeated by the blood of the heart,—a condition which can by no means be granted,—the latter would rule uncontrolled in all the members, subjugate their individualities, and not excite them to exercise any of the peculiar forces of which they are the forms. In a word, the whole man would be permanently in the fœtal state, for ever inchoate and ineffective."

So far the translator. We have now done with the "Animal Kingdom;" and we honestly declare, that, be its merits great or none, or in whatever intermediate category it be placed, it stands alone amid scientific writings, and is a monument, at any rate, of the persistent daring and originality of Swedenborg's mind.

COMMUNICATIONS AND EXTRACTS.

To the Editors of "THE VETERINARY RECORD."

Gentlemen,—THE first number of your new Periodical having lately come under my observation, I cannot forbear taking the earliest opportunity of expressing to you my high opinion of the work, and of sincerely thanking you for an undertaking which is likely to prove the richest addition that has been made to veterinary science since the establishment of the institution over which

you so ably preside. It is unquestionably the duty, and indeed it ought to be the pride, of every practical veterinarian to contribute his quota to the store from which all may glean something of interest or advantage; and, therefore, if you will allow me the honour of a place in your lists, I shall, from time to time, bring before your notice such cases and observations as, occurring in practice, seem to me most worthy of publication in your valuable "Record." Take, to begin with, one of

Dislocated Fetlock Joint,

an accident which so seldom occurs, that I have never yet seen an account of it in those works to which the veterinary surgeon commonly refers, when he meets with any thing novel or puzzling in practice. The following report may, therefore, not be without interest.

On the 13th of May, 1843, I was requested, by a farmer residing about half way between this town and Shrewsbury, to visit a two-year-old chestnut colt which had met with an accident on the preceding day, under rather curious circumstances. He had been haltered and led out into a field for the purpose of undergoing the operation of castration; but, on feeling the rope round his neck, he took to kicking and plunging, with such a degree of desperation, that he soon made his escape from the hands of the individual who was leading him, and started off at full gallop. He had not gone far, however, until, one of his feet getting fast in the halter, he came down suddenly and with great force; and, on rising, was perceived to walk, or rather hobble along, with his near hind fetlock-joint in contact with the ground. Of course, the lameness was so excessive, that he was without difficulty recaptured; and having been led gently to the stable, the farrier usually employed at the farm (there being no veterinary surgeon within nine miles of the place) was immediately sent for. This worthy gentleman, after duly examining the injured joint, and making a few learned observations on the same for the edification of those around him, pronounced it a broken leg; and then advised, as he had never found broken legs come to any good, that the animal should be immediately destroyed. To this the owner was about to consent, when a third party suggested, as the colt was a very valuable

one, the policy of calling in a properly qualified veterinary surgeon, and I was accordingly sent for on the following morning.

On my arrival, I found the poor animal evidently labouring under intense suffering, consequent upon the injury, with symptoms of constitutional disturbance really alarming. As before described, the fetlock joint of the near hind leg, whenever he made an attempt to use it, was brought into direct contact with the ground, as were also the pasterns and hoof, which pointed laterally and outwards from the supposed median lines.

Having secured him from struggling by the usual means, I proceeded to examine minutely into the nature of the injury. This there was not much difficulty in doing; for, strange enough, the swelling which had taken place up to this time was very trifling, and, therefore, I was enabled, almost immediately, to form, what the event proved to be, a correct diagnosis.

The absence of any thing like crepitus satisfied me that there was no fracture present, so that it was evident I had nothing but a dislocation to contend with. In this, as the anatomical construction of the parts would lead one to suppose, the sesamoid bones were found to participate; and, as might also have been anticipated, it was from their articulations with the metatarsal bone that they were severed, the union with the os suffraginis remaining perfect. Of the degree of ligamentary lesion it was impossible to form an opinion, although, from a circumstance of which I shall speak presently, I am inclined to think it must have been considerable.

Of the manner in which the reduction was effected it is unnecessary to speak, suffice it to say that the resistance to be overcome was so very trifling that I had not the slightest difficulty, unassisted, in bringing the parts into their proper position; a circumstance at which, I confess, I was a good deal surprised, as I had anticipated in this a rather serious undertaking. The reduction completed, I allowed the animal to be liberated, whilst I got ready the splents and bandages, when he used the joint with perfect freedom, and walked round his box tolerably upright. On visiting him again, however, in the course of half an hour, dislocation had again taken place; thus proving, as I have just hinted, the existence of considerable ligamentary injury. The reduction was again effected with the greatest ease.

For securing the parts in their proper positions, I made use of

the gum bandage, after the manner in which it is now sometimes applied by surgeons in cases of fracture and dislocations. I commenced by covering the leg, from the hoof nearly up to the hock, with a piece of linen rag, upon which I laid a thick coating of mucilage, afterwards applying a strong cotton roller, and taking care to use the mucilage brush at every turn of the bandage. Upon this I placed several large pledgets of tow also saturated with the gummy solution, and then, on each side of the injured joint, a piece of wood previously grooved out, in a manner to adapt it to the parts, over all of which another strong roller was several times applied in the same way as at first, and I then left him with directions that he should be watched, so that he might not move until I had seen him again.

On the following day I was pleased to find my patient going on in every respect to my perfect satisfaction. The bandages were quite dry and firm—the joint perfectly straight—and the symptomatic fever fast subsiding. In a word, he never afterwards faltered, and when, at the expiration of a month, the bandages were removed, he was perfectly free from lameness; nor was there the slightest swelling or other mark remaining to denote that such an accident had ever occurred.

Before taking leave of the subject, perhaps I ought to confess that I am indebted for the hint of the gum bandage to some observations made by Mr. Mayer, jun., of Newcastle, at a meeting of the Veterinary Medical Association, held in the theatre of the R. V. C. about four years ago.

I have considered the foregoing case deserving of record, partly because it is one of rare occurrence, and not yet spoken of by any veterinary author with whom I am acquainted, and partly because it evinces somewhat forcibly the necessity of a knowledge of anatomy to the practical veterinarian, and proves, beyond dispute, in spite of the boast of experience, that all conclusions deduced from other than scientific facts are both deceptive and dangerous. Moreover, it is a remarkable instance of the efficacy and utility of the gum bandage, to some of the advantages of which I shall draw your attention on a future occasion.

I am, &c.

Bishop's Castle, Salop,
Feb. 25th, 1845.

W. Lutt.

Case of Rabies in a Horse.

By Mr. J. Markham.

Dear Sirs,—Perceiving the history of a case of rabies in the horse in your last number, by Mr. Raddall, I beg leave to forward another, which I was called upon to treat on the 1st of November last.

About ten o'clock A.M. a boatman came for me, telling me he thought his horse had an attack of colic, as he was rolling about, and had lain down several times on the towing-path that morning. He also informed me, previous to my seeing the horse, that he thought there must be something the matter with his mouth, as he would get the corn into his mouth, and there hold it a short time, and then let it drop out again without swallowing any of it, which observation led me to ask him if his horse had ever been bitten by a dog? he said, not that he knew of, but he might have been, as he had been turned out to grass for a month, with a rowel inserted in his chest, some persons believing him to be chest-foundered, and he had not been taken up from grass more than a week. When I arrived at the stable the animal was standing quiet, and seemed free from pain: the man that was left with him said he had not lain down for the last ten minutes, but had bitten his shoulder several times, which was then bleeding, and several pieces of skin, the size of a half crown, were torn out. The cause of his thus biting his shoulder they thought was the rowel, it being still in his chest. On examination I found his pulse full, but scarcely at all accelerated; his ears warm, his mouth hot, but moist. I had him taken out of the stable, and examined him very minutely, to see if I could find the marks of any bite about him, as my suspicions were increased by the groom telling me that he ran at him several times that morning, and had never shewn any symptoms of vice previously. I could not detect any thing that would lead me to suspect he had been bitten. I proceeded to administer a cathartic ball, but before I could get my hand out of his mouth, a violent spasm came on, and he appeared similar to a horse having tetanus: the spasm continued for about a minute or two, but which seemed to me a very long time, as one of his tushes entered the under part of my wrist, and the other

the back of my hand, which was any thing but a pleasant situation to be placed in, since I could not tell how long the spasm might last, it being the first case of rabies I had ever attended; but I happened to have the presence of mind to keep his tongue between his molar teeth, which prevented his jaws from closing so tightly as they otherwise would have done. My wrist was bitten very severely, as you may suppose, one of the large tendons being divided, a portion of which, protruding, had to be excised; but the wounds are now healed, and I feel no inconvenience whatever from the bite. It will, however, be a caution to me for the future, and I hope to others also, never to attempt to give a rabid horse a ball.

When the spasm ceased, the ball was ejected: a dose of aloes was then dissolved in warm water and ordered to be given as a draught, but as soon as the animal tried to swallow, the spasm came on again, and he held the horn in his mouth for some time. When the spasm ceased, and the horn was taken from him, I perceived that his teeth had gone through the horn on each side. I was not in the stable while he was drenched, but I asked the men if he had swallowed any of the draught?—they said they did not see him swallow at all. A large quantity of blood was now taken from him, and he was placed in a loose box, a pail of water being left with him, and a little mash. I then went home, requesting the owner to let me know if any violent symptoms came on, and cautioned them to be very careful how they went near him. Between three and four o'clock P.M. they came to inform me that he was much worse; that he ran at them if they went into the box, and often seized himself by the shoulder or leg with his teeth; he would then lie down and roll about in dreadful agony. Before my arrival the pain had left him, and he was standing with his head towards the manger. As soon as I opened the box door he immediately turned round and ran at me with open mouth: I stood with the door in my hand ready to make my escape; but when he got within about a yard and a half of me, he stopped suddenly and trembled very violently for several minutes, until his owner spoke to him, when the trembling immediately left him. He continued nearly free from pain from five until nine o'clock, and would go to the water and try to drink, but we could not perceive that he drank any, nor had he eaten any of his mash. Soon after nine o'clock he began to run at his rack and manger, and tried to bite pieces out of the

wall, and continued either biting his shoulder or legs, or running at the wall, rack, or manger, until half-past eleven o'clock, when death put an end to his intense sufferings. I am sorry I had not an opportunity of making a post-mortem examination, as he was taken away early the next morning, and, from the bite I had received, I was prevented being present.

I am, dear Sirs,

Your's, respectfully.

Rugeley, Jan. 15, 1845.

Case of Phrenic Hernia in a Horse.

By Mr. T. D. Broad.

Dear Sirs,—If you think the following case worth a place in your valuable Journal, it is at your service. On the 6th inst. I was called early in the morning to see a five-year-old thorough-bred gelding, the property of T. Clark, Esq., of this town. I was informed by the groom that he was running about the stable like a mad horse. I went immediately, and found him knocking himself from one side of his box to the other, so much so, that it was dangerous to be in the place with him: it was quite impossible to take his pulse. I had a halter placed on him, and pulled him to the side of his box, over which I bled him, and abstracted a considerable quantity of blood, after which he appeared more easy. I then administered a draught, consisting of aloes in solution, tinct. opii, et spt. æther. nit.; threw up enemas of water, and subsequently of tobacco smoke. He remained comparatively easy until two P.M., when another paroxysm came on. The pulse had been ranging from 60 to 80, but was rather feeble. I again bled him until I produced symptoms of syncope, and administered more medicine, continuing the enemas, as the bowels had not responded, although he drank a large quantity of water and gruel. He still shewed much uneasiness, and occasionally laid down, but did not struggle when down. The head was turned to the right side, whether up or down. He remained in nearly the same state until the following morning, ten o'clock, when he reeled about his box, and fell violently. After he was down, he placed his fore legs out in the same position that dogs often do, and which is a very frequent symptom of

diaphragmatic hernia: after lying in that position for a s time he expired. I immediately made a post-mortem exan tion, three of our surgeons kindly assisting me.

Upon opening the abdomen, the cause of death was soon ceived, as nearly two yards of the ileum had passed throu laceration in the tendinous portion of the diaphragm by the of the foramen dextrum, through which the posterior cava ceeds, and become strangulated. It contained a quantity of coloured fluid, and was in a state of gangrene, as was that pa the pleura in contact with it. I have seen cases of diaphragı hernia accompanied with rupture, but never an instance like present. The lining of the stomach was very much inflamed one lobe of the liver was much congested.

The horse was in good condition, and had not been out o stable the day before his illness, indeed, he appeared as usu late as eight o'clock in the evening; but, two days previous t illness, he had been leaping over a bar, which might have bee immediate cause of this lesion.

I am,

Your's respectfully.

Trowbridge, Jan. 31*st*, 1845.

Case of supposed Glanders in a Cow.

By Mr. J. Mannington.

Gentlemen,—The following brief history of a case of di occurring in the cow, cannot, I think, but be interesting, i instructive, to the comparative pathologist, in consequence great analogy it bears to that destructive malady known b name of glanders, and to which so many of our horse annually falling a sacrifice. Should you, therefore, deem sufficient importance to occupy a place in your valuable perio "The Veterinary Record," a publication I look upon as calculated to fill up a hiatus which has too long existed i literature of our profession, its insertion in the forthcc number will oblige

Your's, faithfu

To the Editors of "The Veterinary Record."

The patient was the property of Mr. ————, of Hatfield: she had been observed for some time to be falling off in condition, but more especially during the previous month: however, as her appetite did not particularly fail, no medical treatment was adopted until about the middle of April last. At this time her owner, finding that a discharge from her nostrils existed, accompanied with a cough, a diminished desire for food, and other appearances of disease of a more active nature, I was requested to attend.

On examination, the following symptoms presented themselves: a copious discharge of unhealthy pus of a yellowish colour, and adhesive in its character, from both nostrils—breathing quickened and laboured, and also sonorous, arising from the difficulty of the passage of the air through the nasal cavities in the act of respiration—an occasional husky cough—the sight of the left eye nearly lost from inflammation of the conjunctiva, and the transparent cornea quickly going on to an ulcerative termination. The pulse was feeble, beating at about 70 in the minute. There was some shrinking on the application of pressure to the sides. Much constitutional debility existed, with impaired appetite and diminished rumination, but the alvine evacuations were natural. These appearances, together with the history of the case, led me to view the affection as one possessing many peculiar characters, having its seat principally in the respiratory organs.

My diagnosis was unfavourable, but it was deemed expedient to try the effect of medical treatment; accordingly tonics, combined with carminatives, were freely administered, with an occasional laxative to correct the condition of the bowels; a blister also was applied to both sides of the thorax: this acted well, yet no diminution in the severity of the symptoms took place, but contrariwise, for in about a week the cornea of the other eye had become ulcerated, and swellings of the lips, muzzle, and contiguous parts came on, which quickly proceeded to ulceration; her teats also became similarly affected. The discharge from the nostrils was undiminished; the breathing had become more obstructed, quick, and difficult; the cough was nearly incessant, the pulse increased in number of beats, and weaker, and the general emaciation extreme. Under these circumstances it was recommended that she should be destroyed, which was done.

The post-mortem examination shewed the Schneiderian mem-

brane to be extensively diseased, and covered here and there with superficial ulcers congregated together: the cavities between the turbinated bones contained a quantity of pus, of the same nature as that which had been discharged from her nostrils; the mucous lining membrane of the larynx and trachea was inflamed, but free from ulceration; and the lungs were studded with tubercles, many of which had pus in their interiors. No vomicæ were detected, but, from the quantity of matter contained in some of the tubercles, a few days only could have passed without their formation taking place.

Other portions of the lungs presented an appearance similar to that morbid change termed hepatization, which seemed to be the result of inflammation of a more active character, and this probably accounted for the pain on pressure to the sides, and some of the other symptoms present. The ulcerations on the teats were carefully examined; but I failed to detect, either here or in any other part of the body, that state of the absorbents which is present in farcy when associated with glanders in the horse.

On the Disease designated Pleuro-pneumonia Epizootica in Cattle.

By P. Verheegen, *Professor at the Veterinary School, Brussels. Translated from the "Journal Vétérinaire de Belgique," by Mr.* W. Ernes.

The epizootic called pleuro-pneumonia, seems to have first shewn itself in Germany and Switzerland, towards the middle of the eighteenth century. Some writers have dated its commencement farther back, considering the pleuro-pneumonia maligna to be such, which in 1693 committed great ravages among the herds of oxen in Hesse. In 1743 the pleuro-pneumonia epizootica invaded the Canton of Zurich, and has prevailed ever since in Switzerland, sometimes in one Canton and sometimes in another. From 1778 to 1784 it exhibited itself in Upper Silesia, and, dating from that time, it has successively visited the different states of Germany, and has continued there to this day. The pleuro-pneumonia epizootica began to manifest itself in Piedmont in the autumn of the year 1827. It first attacked the cattle of the Vigevano and the Alps of Mondovi, and, according to Lauria, it shews itself every year in the neighbourhood of Pavia.

This affection is the same as that described by M. Huzard under the denomination of peripneumonia chronic, or phthisical pulmonitis, which affected the milch cows of Paris and its environs, and which has shewn itself in the years 1772-76-80-86-87-89-91-92, and in the second and eighth year of the Republic. It seems that it was known long before in the departments of the Jura, Doubs, and Vosges, where it had manifested itself at the time of its first appearing in Switzerland. Since 1827 Professor Delafond has constantly found it to exist in the dairies of Paris and its environs; and since 1830 it has invaded several other departments.

Is this affection identical with the "pleuro-peripneumonia gangrenous" described by Chabert, and with which some authors have confounded it? It is sufficient to compare the morbid lesions of the two affections to remove all doubts of their identity. The peripneumonia gangrenous is to us an old disease, and one which has committed great ravages in Belgium in 1795 and 1796, particularly in the provinces of Brabant and Antwerp.

The true pleuro-pneumonia epizootica which actually prevails in Belgium at the present time, and which has within a few years caused great destruction among our horned cattle, seems to be a new disease, and one which has not before existed. It may be that it has passed unnoticed, from the want of authentic documents. The first accurate accounts we possess date only from 1827, at which period this disease manifested itself suddenly in the communes of Hakendoren, Neerlinter, Oplinten, and Wommersoon. In 1828 and 1829 it shewed itself at Eykoliet, Muysen, Duffel and Tirlemont, Orbeck and Diest, where it was observed by MM. Deceuleneer, Vanderpatten, and Foelen. Since that time it has invaded Flanders, and has also made its appearance in several other provinces. Far from decreasing, it seems to extend its ravages, and now threatens to become a permanent bane to the agriculturist.

It is not at all probable that the pleuro-pneumonia epizootica would have remained unknown had it shewed itself in Belgium before 1827; for it may be justly considered as the most formidable disease affecting the species bovis, with the solitary exception of the contagious typhus: hence it is not so insignificant as not to have been noticed by some observer, and, with other epizootic diseases, have obtained a place in history.

(To be continued.)

NOTE TO THE EDITORS BY MR. W. ERNST.

I find in the number for January 1845, of the Belgian Jo
that the epizootic which has made its appearance among th
minants in several states of the Austrian empire, and whic
have, no doubt, ere this been informed of, is the malignant ty
Several of the German States have already adopted measu
prevent the importation of cattle, hides, &c. from the infecte
tricts. At the command of the French Government, MM. Y
inspector of the veterinary schools in France, &c., and Renau
rector of the veterinary school at Alfort, with Imlin, mé
vétérinaire at Strasburgh, have set out for Germany, to stud
character of this typhoid epizootic.

From *Paris*:—The pest among cattle, which has shewn
in Bohemia, could not fail to occupy the attention of the Aca
of Sciences, after having been taken up with such lively solic
by the different agricultural societies. M. Rayer has comm
cated on this subject an interesting memoir from Dr. Sch
director of the central veterinary school of Bavaria, address
the government of that kingdom.

The disease, at first, prevailed in Moravia, where it was br
by some animals that arrived from Russia and Bessarabia.
September to the 5th of December, 1065 were attacked in
district; 845 died, and 129 were slaughtered. It only manif
itself in Bohemia towards the end of December. It has
trated into Lower Austria, and this is attributed to the imp
tion of 5224 oxen from Podolia and Bohemia in August
December.

Dr. Schwab has investigated this terrible malady, against
progress of which there is no prevention, except general slaug
and the most strict blockade of the infected districts.

Dr. Schwab divides the disease into three different per
The first (sub-inflammatory) presents the following symptom
great languor, dulness, prostration of the vital powers, the
glaring, dry cough, morbid sensibility of the spinal column,
harsh and staring, looseness of the incisor teeth.—The se
period (inflammatory):—the secretion of milk is suspended,
of appetite and rumination, excessive thirst, hurried respira

twitchings of the nostrils and lips, suppression of urine, trembling of the muscles about the shoulders, mouth dry, and the gums swollen.—The third period is the typhoid, which is manifested by the presence of diarrhœa, redness and tumefaction of the anus, mucous discharge from the nostrils, frequent moans, and death soon follows.

Dr. Schwab has assisted at five post-mortem examinations, which presented the following appearances:—1st, inflammation of the gall-bladder; 2d, alteration of the character of the bile; 3d, inflammation of the fourth or true stomach; 4th, inflammation of the intestinal canal, more especially of the small intestines and cœcum; and, 5th, inflammation of the mucous membrane of the air-passages.

HORNS IN THE HUMAN SUBJECT.—Some curious speculations were excited in the minds of the older physicians by the observation of cases of horny growths. Thus, Rhodius met with a Benedictine monk who had a pair of horns, and was addicted to rumination; and Fabricius, having seen a man with a horn growing from his forehead, whose son ruminated, is willing to give the father the credit of transmitting this disposition to the son, by virtue of the ruminant character which he bore so obviously upon his head.

The most remarkable case of human horn on record is that of a Mexican porter, named Paul Rodriguez. The horn was situated upon the upper and lateral part of the head; it was fourteen inches in circumference around its shaft, and it divided above this point into three branches.

Voigtel cites the case of an old woman who had a horn with three branches growing from her forehead; and M. Dubois had a woman under his care, in the *Hospice de Perfectionnement*, with a horn that measured seven or eight inches in diameter at its base, and was six inches in length. The length of the horn in some recorded instances is also remarkable. Sir Everard Home saw two cases, in both of which the growth measured five inches by one inch in diameter. They were curled, and had the appearance of isinglass. In one case the horn was fourteen years growing. Dr. Gregory mentions a horn which was removed from the temple of a woman in Edinburgh, which measured seven inches. Dr.

Chariere, of Barnstaple, saw one growing from the nape of a woman's neck, which measured seven inches. A horn in the British Museum is said to measure eleven inches in length by two-and-a-half in circumference; and Bartholin, Faget, and several other writers, have spoken of horns twelve inches long.

A singular instance of horn is mentioned by Cruveilhier, in his "Anatomie Pathologique," as falling under the notice of Dr. Faget, of Bordeaux. The subject was a Mexican Indian, and the horn was situated in the lumbar region on the left side. After growing for three years, it had attained a length of four inches by seven or eight inches in circumference, and was sawn off by the patient's son: in another three years it was submitted to a similar operation; and, at the end of nine or ten years from its first appearance, was extirpated by M. Faget. The portion removed by M. Faget, with the two portions previously cut off, amounted in length to about twelve inches.

In a scarce tract in small quarto, published in 1676, there is "A brief narrative of a strange and wonderful old woman that had a pair of horns growing upon her head." "This strange and stupendous effect," continues the pamphlet, "began first from a soreness" of the back part of the head where the horns grew. "This soreness continued twenty years, in which time it miserably afflicted this good woman, and ripened gradually into a wen near the bigness of a large hen egg, which continued for the space of five years, more sadly tormenting her than before; after which time it was, by a strange operation of nature, changed into horns, which are in show and substance much like ram's horn, solid and wrinkled, but sadly grieving the old woman, especially upon the change of weather." The horns were shed four times: the first "grew long, but as slender as an oaten straw;" the second was thicker, and, on the fall of the latter, two were produced, which were broken off by accident. One of these was presented to the King of France; the other is stated to have been nine inches long and two inches in circumference. The periods of shedding were three, four, and four years and a-half. There is an engraving of this woman in Dr. Charles Leigh's Natural History of Lancashire, Cheshire, and the Peak of Derbyshire. Her portrait, with one of the horns, is in the Ashmolean Museum, and another of the horns is in the British Museum.

Mr. E. Wilson on a Horn, &c.

HORNY TEXTURES.—Horn is known to be an epidermic formation, and necessarily resembles epidermis in its essential characters. That this is the case among all animals, not excluding man himself, is demonstrated by the following account of a human horn, recorded by Mr. Erasmus Wilson:—

"On examining the horn after removal, I found its base to be formed by the deep stratum of the corium, so that it was obviously a cutaneous formation. The base was oval in shape, and measured in its long diameter one inch and a-half, and in the opposite direction one inch and a-quarter. The horn was two inches and three quarters in length by two inches in greatest breadth, and its elevation above the surface was one inch and a quarter. The latter measurement was that of the vertical thickness of the horn; for, in consequence of its mode of growth, its long diameter lay parallel with the surface of the skin. The weight of the horn was six drachms.

"The section of the growth presents all the characters of horn; it is laminated longitudinally, the laminæ being distinctly traced by their difference of tint from the base to the apex of the horn. At the apex, moreover, it is split in the direction of its laminæ, and several external lamellæ are partly separated from those beneath.

"In minute structure it is composed of flattened epithelial cells, closely condensed, and in some parts having a fibrous arrangement. The epithelial scales are somewhat larger than those of the epidermis, and possess nuclei; a circumstance which confirms the analogy between the inflected follicles of the skin and those larger inflections lined by mucous membrane. The flattened cells measured in long diameter from $\frac{1}{700}$ to $\frac{1}{300}$ of an inch, and in the short diameter from $\frac{1}{1000}$ to $\frac{1}{350}$; the average of these measurements being $\frac{1}{500}$ for the long and $\frac{1}{650}$ for the short diameter. The nuclei are for the most part oval in shape, the long diameter measuring $\frac{1}{2500}$, and the short $\frac{1}{3300}$ of an inch. Epidermic cells, according to my observations, have an average admeasurement of $\frac{1}{600}$ by $\frac{1}{800}$; and the epithelial cells of the mouth $\frac{1}{300}$ by $\frac{1}{400}$ of an inch. The nuclei of the latter measured $\frac{1}{3000}$ of an inch.

"I made no chemical analysis of the horn in the present case, but this has been done repeatedly on the continent. M. Dublanc

has published an analysis of human horn in the *Journal de Pharmacie*, and another analysis was made of a horn which is deposited in the Dupuytren Museum. Both analyses go to shew that horn is chiefly composed of albumen, a small quantity of mucus, phosphate of lime and chloride of sodium, and a trace of lactate of soda."

SEBACEOUS SECRETION.—So much of the beauty and sleekness of coat of our domestic animals is due to the unctuous matter poured out by the sebaceous glands into the follicles of the hairs, that the following observations on this substance will not be uninteresting to our readers. The remarks in this extract are especially referrible to man, but they are equally applicable to animals.

"The sebaceous substance is secreted from the blood through the agency of the cells which compose the epithelial lining of the gland, as is the case, probably, with all the secretions of the body; but there is this difference between the sebaceous and other secretions, namely, that the former is semi-solid, while the rest are fluid; the solidity or density of the sebaceous matter being due to the great number of empty and more or less distended cells which compose its mass. The sebaceous cells are developed in the same manner with epithelial cells in other situations, from a cyto-blastema in which the young cells appear. The contents of the cells vary at different periods of their growth: the young cells contain a homogeneous and limpid fluid, which becomes flocculent from coagulation as growth proceeds, and finally granulous; while in the perfect cells minute oil-globules in greater or less numbers may be perceived. The function of the cell, from its earliest period of existence to full maturity, is one of imbibition from the blood of albuminous, oleaginous, and saline elements combined and in solution. Towards maturity these elements separate from each other, and may be detected as granular matter and oil-globules; but when maturity is completed, the function of the cell is reversed, an outgoing or transuding current is established, and its contents become dispersed between the cells and in the excretory cavity of the gland. At the close of this process the cells are more or less emptied of their contents, and many of them are flaccid and flattened.

"From the above description it will be apparent—and the fact may be demonstrated by the microscope—that the sebaceous substance is composed of cytoblasts and cells at every stage of deve-

lopment, of emptied and broken epithelial cells, of oil-globules of various magnitude, of crystals of stearine, of pigment granules, of granules of albuminous matter, of salts which crystallize on desiccation of the secretion, and of more or less of albuminous fluid mingled with the other constituents, and bestowing, with the oil-globules, softness on the mass. The quantity of the sebaceous matter varies in different individuals, as do its density and apparent composition. In persons who possess an actively secreting skin, the quantity of sebaceous substance is considerable: it is soft, homogeneous, and contains numerous full and empty cells. But in those in whom the skin is torpid the secretion is dense; it consists of masses which are modelled on the hairs contained in the follicles, or on the walls of the tubuli of the glands, and the majority of the cells are flattened and condensed into a membranous structure."—*Erasmus Wilson's Account of a Horn developed from the Human Skin, in the Medico-Chirurgical Transactions*, vol. xxvii.

CONTRIBUTIONS TO VETERINARY PATHOLOGY.

By Mr. J. Purves, *V.S., Hon. E. I. C. Service.*

No. 1 of a Series.

Case of Ulceration of the Stomach.

The animal was admitted for an attack of mange, on the 18th October 1836. He was directed to be placed apart from other horses, and to be dressed with the ordinary tar liniment. 17th. Gave physic. 21st. Dressed again, and gave a mild diuretic. Nov. 12th. Dressed again. Dec. 5th. Still some irritation of the skin remaining; dressed again. This dressing appeared to create great excitement of the system. 14th. The animal reported by the farrier major to be a little off his feed, eating his grass well, but does not eat all his gram. 15th. Much the same. 16th. Feeding worse: pulse not at all affected; mouth offensive; tongue furred. ℞ Hyd. submur. ʒss, nit. potas. ʒiij, aloes ʒj, in a ball. 17th. Pulse quickened and weak; conjunctiva reddened. ℞ Digital. pulv. et ant. tartar. āā ʒss in the morning; drank water during the day, and seems in better spirits, and ate a little grass. In the

evening gave spt. æther. nitrici ℥j, and inserted a rowel in the chest: the pulse does not indicate bleeding; perhaps I should have bled yesterday, but not copiously. 18th. In the morning much the same. Give the fever medicine as yesterday, with spts. æther. nit. ℥j. During the day the farrier major reported him to be much better: he had eaten his grass more freely, and drank suttoo water. When I saw him afterwards, about half past four, the appearances were highly unfavourable; the pulse was weaker and quicker; the breathing laboured; the flanks much tucked up; the mouth highly offensive, yet he did not appear at all like a dying horse, for his spirits were good, and he would not allow me to go near him, and he attempted to bite and kick the sycee several times, particularly when he was taking off or putting on his clothing. He was a very irritable and vicious horse at all times, and was, therefore, kept constantly blindfolded. About half past nine, the farrier major reported him to be suddenly taken much worse, and described him as being apparently quite well until just before the hour of nine struck; he had lain down and got up again without difficulty. On my arrival I found he had lain down a second time and could not get up again, although often trying to do so, nor could he be lifted up; the breathing was laborious; the pulse not to be felt; in short, he appeared as if he was dying. I introduced my hand up the rectum, with a view to ascertain in what state his bladder was, and found it full. I pressed it, and a great quantity of urine escaped. There was scarcely any dung in the rectum, and what little there was smelt dreadfully. The animal died just before ten o'clock.

Post-mortem Examination.—Stomach highly diseased; the villous portion ulcerated in five or six different places; the cuticular portion also ulcerated, but apparently of old standing. Some of the ulcers had healed up; but at one part the cuticular lining, with the muscular coat, was completely gone, being ulcerated through, and nothing left but the peritoneal coat, for about an inch and three quarters long by an inch and a quarter broad. I never saw anything like this before. I should think the stomach, in all probability, would have burst had the animal lived. The peritoneum throughout was discoloured and unhealthy; omentum, diseased; spleen a good deal so, and it appeared much discoloured, and tougher than usual; the liver pretty healthy, but the mucous lining of the intestines, particularly that of the larger ones, much

inflamed, and the contents highly offensive; the lungs presented a florid aspect, but the heart was healthy. These lesions would almost warrant the suspicion of some poisonous agent having been administered.

MISCELLANEA.

The Board of Examiners of the Royal College of Veterinary Surgeons of England consists of Professor Brande, Bransby Cooper, Robert Liston, and Edward Stanley, Esquires; and Messrs. G. Baker, W. Field, E. Gabriel, W. Goodwin, W. Percivall, and J. Turner, as Veterinary Members.

The following are Members *ex-officio*:—Messrs. Sewell, Spooner, Simonds, and Morton, of the Royal Veterinary College, and Mr. F. C. Cherry, Principal Veterinary Surgeon to the Army.

For Scotland the following have been elected:—Drs. Knox, Mercer, and M'Gregor, and Mr. Lyon; with Messrs. Lyon, Mather, Tindall, Williamson, and the Veterinary Surgeon of the Regiment stationed at Edinburgh for the time being. Professor Dick is also a Member *ex-officio*.

Names *of* Gentlemen *who have obtained their* Diplomas *from the Royal College of Veterinary Surgeons.*

February 26, 1845.

Mr. Edward Mayhew, London.
Mr. Edwin Taylor, Bury St. Edmunds.
Mr. R. H. Dyer, Winchester.

March 5, 1845.

Mr. J. T. Lee, London.
Mr. H. Evans, Liverpool.
Mr. Eben. Hutchinson, Bingham.
Mr. Josiah Hutton, Great Yeldham.

Dray-Horses in India.

Sir Alexander Burnes was deputed a few years since to convey five dray-horses to the Maharajah of Lahore, Runjeet Singh, as a present from the King of England. When the horses were shewn

to the natives on entering the territory of Lahore, their surprise was extreme; for they were little elephants, said they, and not horses. Their manes and tails seemed to please, from their resemblance to the hair of the cow of Thibet; and their colour, a dappled grey, was considered a great beauty. It was not without difficulty that I replied to the numerous questions regarding them; for they believed that the presents of the King of England must be extraordinary in every way; and, for the first time, a dray-horse was expected to gallop, canter, and perform all the evolutions of the most agile animal. Their astonishment reached its height when the feet of the horses were examined; and a particular request was made of me to permit the despatch of one of the shoes to Lahore, as it was found to weigh 100 rupees, or as much as the four shoes of a horse in this country. The curiosity was forthwith despatched by express, and accompanied by that minute measurement of each of the animals for Runjeet Singh's special information.

The dray-horses soon rose to dignities such as no dray-horse ever before reached: they were dressed in cloth of gold, and bore an elephant's saddle on their back. Moreover, in the Maharajah's letter of thanks to the King of England, they are spoken of as being "of superior quality, of singular beauty, of alpine form, and elephantine stature." "By the favour of Sri Akal Poorukh Jee" (God), writes the monarch, "there are in my stables valuable and high-bred horses from the different districts of Hindoostan, from Turkistan, and Persia; but none of them will bear comparison with those presented to me by the King, through your Excellency; for these animals, in beauty, stature, and disposition, surpass the horses of every city and every country in the world. On beholding their shoes, the new moon turned pale with envy, and nearly disappeared from the sky. Such horses the eye of the sun has never before beheld in his course through the universe. Unable to bestow upon them in writing the praises that they merit, I am compelled to throw the reins on the neck of the steed of description, and relinquish the pursuit."

Travels in Bokhara, by Lieut. Alexander Burnes, F.R.S.

THE

VETERINARY RECORD, &c.

VOL. I.] JULY 1845. [No. 3.

CONTRIBUTIONS TO COMPARATIVE ANATOMY.

By DR. KNOX, F.R.S.E., *Corresponding Member of the French Academy of Medicine; Lecturer on Anatomy and Physiology, &c. &c.*

To the Editors of "THE VETERINARY RECORD."

Dear Sirs,—FROM my earliest years I have taken great interest in Comparative Anatomy; and as the anatomy of the horse, when compared with human structure, offers to the student of physiological science the additional advantage of working with materials of great practical worth, I shall be happy to assist, to the utmost of my ability, in maintaining this close union between science and practice, and with this view beg leave to forward the following brief contributions for "The Veterinary Record," a periodical so ably conducted by you.

I am, yours, &c.

Edinburgh, March 1845. R. KNOX.

---

1. SOME REMARKS ON THE STRUCTURE OF THE NOSTRILS OF THE HORSE.

WHOEVER looks with an observing eye at the nostrils of man, or any other highly organized animal, will immediately perceive motions going on synchronously with those of breathing or of respiration. He may perceive, in fact, that the nostrils dilate, expand and open at each inspiration, subsiding at each expiration; that the action or contraction of the diaphragm and intercostal muscles is not more regular nor more constant than the movements of the nostrils; that they are, in truth, synchronous and associated actions; that they are functions tending to one end; means used for one purpose, namely, the ready, uninterrupted,

unimpeded admission of fresh air from the circumambient atmosphere into the interior of the lungs, through and by a series of tubes, cavities, and apertures nicely adjusted and adapted to the wants of the animal under every circumstance of life.

This admirable play of the nostrils attracted my attention at a very early period of my anatomical studies. Here is an action, I said—an action of cartilages dependent on muscular action. Now these muscles are of necessity acted on by nerves, the facial nerve or portio dura of the seventh pair, which must unquestionably supply them with a twofold energy, or an energy of two kinds; an energy common to them with all the other branches of the same nerve over which we have a conscious control, and an energy, a respiratory energy, in connexion with the lungs and its nerves, over which we have no control; which acts rythmically, night and day, like the diaphragm and the intercostals. This was my reasoning in 1810: in 1811 I became acquainted with Mr. A. Walker, the most distinguished of all the anatomical lecturers I have ever listened to: his explanation of the phenomenon escapes my recollection at the time, but I think I now know what it must have been;—it would be founded on the original views of Protheska, Albinus, and others of that period, views embracing nearly the whole range of the respiratory vital reflex functions, call them by what name you will. But his explanation at that time escaped me; and in 1812 I had the pleasure of making the acquaintance of that most amiable man and accomplished surgeon, Mr. Samuel Smith, of Leeds, and from him I learned that Mr. Charles Bell, his teacher in 1811, viewed this portio dura as a respiratory nerve, "the respiratory nerve of the face." Thirty-three years have now elapsed since this opinion was stated to me, and I entertain for it the same value I then did; that is, it was trivial, unimportant, and a mere truism; it, in truth, explained nothing. My remarks then were just as they are now. If any one doubts there being muscles associated with the respiratory movements on the face, let him look at the nostrils of a person asleep, and decide by that single remark, not only their existence but their real nature—namely, their entire independence of all voluntary control; and that such muscles acting thus on the nasal cartilages must have nervous twigs supplying them, by means of which they act, and by means of which they may be associated with the respiratory nerves, or eighth pair, no one in the least acquainted with anatomy

could doubt; but the telling me that the portio dura was the respiratory nerve of the face was merely a truism; it explained nothing; it stated what was self-evidently true of some of its branches, leaving unexplained the curious fact, the only curious fact in the whole matter, namely, why some filaments of the nerve should be respiratory and others not. Some ten or twenty years afterwards a physiologist cut this nerve in the horse or the ass as it emerges from the parotid, and discovering that most of the muscles of the face were thereby paralyzed, he asserted it to be merely the *voluntary motor* nerve of the face! He must have forgotten the nostrils, which the reader, I fear, may also think I have forgotten in this seeming digression.

The *reason*, then, why certain filaments only of the *portio dura*, and certain muscles which they supply, are quite involuntary, having never been explained,—let us repose on the fact itself, namely, that there is a cartilaginous, muscular, and nervous apparatus placed at the anterior or inferior extremity of the air tubes, intended to act synchronously with the lungs, diaphragm, and intercostals: such an apparatus, though agreeing in its general elements in the range of animals, must yet differ in many according to the wants, habits, and nature of the animal. My object at present is to speak merely of these structures as they are found in the horse, that animal, in whose conformation the readers of the VETERINARY RECORD naturally are most interested.

The term nostrils is one of rather vague import, and being liable to equivoque, I had better define the terms I intend employing, and the sense it is proposed to use them in. The term nostrils will be used as meaning the whole apparatus of cavities, openings, and passages from the anterior margin of these cavities to the point where they terminate in the pharynx. Now the anterior apertures of this portion of the air-tubes may be called the anterior *openings* of the nostrils, the nostrils themselves being the cavities within. The anterior openings are wide orifices even at the moment of expiration, or after all breathing has ceased, as seen in the horse's head now before me. Selecting the right nostril as the one to be first examined, I observe that on dilating it with the fingers, so as to imitate the dilatation of breathing, it, the orifice, is not only thereby enlarged and dilated in all directions, but the cavity into which it directly leads becomes also evidently enlarged, thus admitting of being examined by its external orifice.

This cavity I venture to call the *vestibule* of the nostrils; it has not, so far as I know, been named as a distinct cavity, and it perhaps does not merit being so especially named, but I find it difficult to continue my description of the deeper structures unless I do so. Now, from this vestibule towards the back and upper part there lead *two orifices* in the horse, both of which are indistinct during expiration or the collapsed state of the parts; nay, perhaps, are even closed hermetically under some circumstances (as when the head is placed entirely under water): these orifices are, first, a superior one leading to "the cavity of the false nostrils," and a second opening differently shaped, and more like an enlarged slit or wide fissure, leading into "the cavity of the true nostrils," this being the name I gave to the remaining part of the tube. This "cavity of the true nostrils" then has two openings, one leading into it, the other out of it; one anteriorly into the "cavity of the vestibule," the other posteriorly into the pharynx. Attentive observation shews that the two openings I have just spoken of, as leading from the vestibule backwards, are to a certain extent separated from each other by a remarkable prolongation of what has usually been called integument, running apparently from near the edge of the external orifice to the inferior turbinated bone; that is, quite across the vestibule. When the *vestibule* is fully dilated, this singular fold is seen to rise up, and by so doing it renders much more apparent the inferior orifice leading into the cavity of the true nostrils; but in the collapsed state this prolongation sinks down, and the orifice, that is the anterior opening of the true nostrils, I speak of is no longer visible. A structure strongly resembling this I had many years ago seen, but on a gigantic scale, in the great northern whale (rorqual), and this led me to look more narrowly into these structures in the horse. I shall speak of that singular structure in the rorqual shortly.

It is easy to see that the orifice by which the false nostril communicates with the vestibule is bounded by, and the lower and inner well of the cavity itself is partly formed by, this fibrous and elastic prolongation already alluded to, which, on being traced, leads to the anterior extremity of the lower turbinated bone to which it is attached. Even without dissection it may be ascertained to be a fold of mucous membrane rolled on itself, and containing evidently two structures;—a true cartilage, also turbinated or rolled on itself, posteriorly; anteriorly, a fibrous cord;

also elastic. Into this spur-like cartilage and prolongation there is inserted a powerful though short semicircular muscle (the nasalis brevis of veterinarians), attached by its other extremity to the maxillary and intermaxillary bones. The action of this muscle is to withdraw the spur-shaped cartilage and its prolongation from the position it usually occupies, filling up nearly the slit-shaped opening leading from the vestibule into the true nostrils, by pulling it upwards and outwards upon the edge of the anterior maxillary bone: in this it is greatly aided by the other muscles acting as dilators of the nostrils, or, to speak more precisely, *dilators of the vestibule*, whose influence, however, is chiefly exerted on the cartilaginous alæ. Whenever I ceased pulling on the muscle, the spur-shaped cartilage with its prolongation returned into its place, shutting up more or less completely the anterior opening of the true nostrils, or that leading into the vestibule. It must be particularly kept in view, that the fibrous prolongation of the spur-shaped cartilage is by its anterior extremity attached to the great alar cartilage, whose slightest motion therefore affects it. Having ascertained these points by repeated and careful examination, and dissected the right and left nostrils from without, I now divided the head vertically into two unequal portions, removing with the left nostril the greater portion of the septum narium: this exposed all the interior of the right vestibule, and true and false nostrils of the same side. I could now ascertain more distinctly than before the structure of "the prolongation" and its attachments, and the influence it exercises in modifying the form of the slit-like aperture of the true chambers of the nostrils. Looking at the right cavity from its inner side in the way I now speak of, it was evident that, whilst undisturbed or in the collapsed state, the spur-shaped cartilage closed in the extremity of the lower meatus of the nostrils; but when raised up by its appropriate muscle, it left this meatus free, shutting in the anterior part of the meatus above it. This curious play was admirable and striking. As covered by mucous membrane undisturbed, it looks like a continuation of the lower turbinated bone, and in one sense no doubt is so; but on stripping off the mucous membrane, a cartilage is discovered, which I have likened to a spur or sickle. This cartilage, which is of considerable length, extends from near the anterior extremity of the lower turbinated bone to a line corresponding to the extremity of the nasal bones.

A fibrous and mucous prolongation extends from its anterior extremity quite to the great alar cartilage, thus completely crossing the vestibule. Previous to this dissection, I had supposed that the spur or sickle-shaped cartilage returned into its place after having been withdrawn by the nasalis brevis, through means of its own elasticity; but although this may be the usual mode in which its replacement is effected, I discovered another muscle so placed as to enable the horse forcibly and on emergencies to pull back the sickle or spur cartilage, and so as more completely to block up the orifice it is intended to protect. This muscle is distinct and large, of a triangular or fan shape, with well-marked fleshy fibres: arising from the inner side of the intermaxillary bone, it is firmly attached to the spur cartilage about the middle. On imitating its action by pulling at it, I found that it depressed very strongly the spur-shaped cartilage and its prolongation; that it was, in fact, the direct antagonist of the nasalis brevis placed on the exterior of the apparatus; that the latter draws the cartilage upwards and outwards; the former, or the internal, as forcibly drew it downwards and backwards.

Reflecting on the probable functions of these parts, and comparing them with man, in whose nostrils analogous and closely resembling structures exist, and with the whale, animals placed in the two extremes, as it were, of those circumstances connected with a defence of the entrance to the air tubes, the following speculative opinions occurred to me:—

The aquatic life of the whale, his mode of breathing, and the danger to which he is of necessity exposed when, plunging to a vast depth in the ocean, he sustains an incredible pressure on the external surface of the nostrils, all require that the protecting apparatus be carried in it to the highest perfection. Accordingly we find it so in the rorqual, the largest of all the whales, and which I have also dissected: the fibro-cartilage filling up the nostrils more resembles a large bolster than any thing else to which I can compare it. When under the water, it rests in the nasal cavities, filling or rather plugging them up hermetically; when he comes to the surface, they are withdrawn by a muscle corresponding to our dilatores narium: the opening into the nostrils from the vestibule is thus cleared; the air rushes into the lungs, following their expansion; the dilators of the nostrils relax; the protecting cartilage returns into the cavity of the nostrils, and the

huge animal again seeks in safety the unfathomable abyss, certain that not a drop of water can reach his nostrils, unless he voluntarily dilates them, which instinct teaches him to avoid.

I have sometimes thought that the very deceptive phenomenon, the supposed "spouting" of the whale, might be explained by an attentive consideration of the nasal structures, although, of course, such opinions must be in the main conjectural. When man places his head entirely under water, after having inspired deeply, he remains for a few seconds with the lungs full, nothing escaping from the nostrils, nor does a drop of water enter these cavities so long as he makes no effort to inspire. But soon bubbles of air appear on the surface of the fluid: this is the air beginning to escape from the lungs, and, passing through the nostrils, gains the surface of the fluid. In this way the lungs may be nearly emptied of air by the gradual escape of portions of the contained air from time to time; but still no water enters the nostrils. But should he "attempt to breathe" whilst under water, the fluid rushes instantly into the nostrils, seeing that "the first act of inspiration is to dilate these cavities," or, at least, to expand that portion of these complex chambers which I have called the vestibule. By which action, as I shall hereafter prove, the anterior opening of the chambers of the true nostrils is also cleared in man, by the elevation of the elastic prolongation similarly placed in him. Now in the whale the arrangement must, I think, be somewhat different. In that animal there is probably no escape of air from the lungs until he reaches the surface, when, discharging it all at once, it gives rise to the appearance of spouting water from his nostrils or blow-holes as they are called;—a false appearance, however, altogether, since no whale really spouts any thing but watery vapour from the lungs.

The arrangement in the horse is somewhat different; but, by means of the muscle I have described, the horse, in all probability, possesses the means of cutting off temporarily all communication between the vestibule and the great or true chambers of the nostrils. This may aid in protecting him somewhat from dust and flies. This, which in the whale is constant, regular, and complete, may be in the horse and man only an occasional occurrence; it being always remembered, however, that the first act of respiration in him, as well as in other animals, is to dilate the vestibule and its orifice, and

to withdraw, by this very dilatation, from the entrance of the true nostrils the spur-shaped cartilage and its prolongation, placed there for its protection. To consider how the nostrils are protected in man under these circumstances would lead me into conjectural digressions, which will find a better place in a "Memoir on the Human Nostrils," which I trust soon to have the pleasure to submit to you.

---

2. On a Muscle in the Arm of the Horse corresponding to the Pronator Teres in Man.

Mr. Percivall, in his admirable work on the "Anatomy of the Horse," has described in the bend of the elbow of the horse the following muscles, as connected with the hollow into which the humeral artery and median nerve descend: 1st. The flexor metacarpi internus; 2d. Flexor accessorius sublimis; 3d. The superficial and deep flexors; 4th. Radialis accessorius. Of these some arise from the inner condyle of the humerus, and some do not. Now, on the outer margin of the first large muscle arising from the inner condyle, which Mr. Percivall has called the flexor metacarpi internus, analogous, no doubt, to the flexor carpi radialis of man, whose attachment inferiorly is in him to the second metacarpal bone, or to that belonging to the fore-finger, I find in the horse another muscle—small it is true, but perfectly distinct in the horse's limb now before me—occupying the position of, and in form, connexions, and relations to surrounding parts, being strictly the *analogue* of the *pronator teres* muscle in man. I transmit with this short notice a sketch of the muscle, made however under unfavourable circumstances. Its brief description is as follows:—

Situation—Antero-internal part of the elbow joint.

Form—Obliquely elongated; narrow; about four inches in length.

Attachment—Superiorly to an eminence on the internal condyle of the humerus and rather posteriorly, adhering slightly to the capsule of the joint. Inferiorly to the anterior and internal surface of the radius, below the insertion of the flexor brachii, and close to the lateral ligament.

Relations—Posteriorly and internally with the flexor metacarpi

internus; anteriorly with the lateral ligament and flexor brachii; crossing in its course the median or radial nerve, and radial artery: thus holding to these two important parts the precise relations which the pronator teres does in man. Its action in the horse will, of course, be extremely feeble, and merely to aid the flexors of the fore arm.

On Pleuro-pneumonia Epizootica in Cattle.

By P. Verheyen, *Professor at the Veterinary School, Brussels.*

[Continued from page 195.]

According to official reports, Holland remained exempt from this disease up to 1832. The ravages then committed by it in the provinces of Gueldre, Holland, Dutch Brabant, and Zealand, were such, that the government prohibited the exportation of cattle. It first broke out in the province of Gueldre, to which it confined itself for two years. Towards the end of 1835 and the beginning of 1836, it spread to Southern Holland with great rapidity. In 1837 it prevailed in more than one hundred villages in the last-named province, and in the same year about 7000 head of cattle were carried off by it. In Holland, as in Belgium, the disease still continues its ravages, but with less intensity, and the period when we shall get rid of it seems to be yet far off.

This malady has attracted the attention of many veterinarians, and the symptoms, stages, and pathological anatomy of it have been described with great accuracy; but the cause remains obscure, and the mode of cure uncertain. The nature of this disease has also awakened much discussion, and on the question of its being contagious or not opinions are singularly divided. In Belgium, as elsewhere, it yet remains unsettled: some deny it *in toto*, others contend for its being so; and, again, others allow it, but with certain modifications.

Pleuro-pneumonia will sometimes shew itself in a locality where it becomes impossible to trace its origin to contagion. Healthy animals, brought from districts where the disease never had been known to exist, have been placed by the side of diseased animals, thus securing immediate contact, and they have licked up the mucus

and saliva without becoming affected. On the other hand, oxen coming from the infected districts, and only suspected of being diseased, have become the means of propagating it in places where it was unknown before. These are some of the arguments which the anti-contagonists avail themselves of. Dieterich adds, that the disease does not attack all the cattle on the same farm, but only those that are badly fed and out of condition; while others that are better kept escape, although they may have been in immediate contact with affected animals. Further, that the disease only develops itself in localities where noxious agents exist inherent to the topography and hygien of a district; that careful inoculations have proved to him that pleuro-pneumonia is not contagious; and he concludes by stating that the disease owes its origin to general causes acting on several individuals at the same time.

If, in some cases, the disease has not been transmitted from a diseased animal to a healthy one, this is not a sufficient reason to place it among the non-contagious diseases, particularly when existing facts seem to prove the contrary. Pathology teaches that it is necessary for an individual to receive the impression of a virus, either fixed or volatile, and that the organism must be predisposed to this impression; but this predisposition may not exist in some individuals: these facts constitute the exception, and not the rule, of which every contagious disease offers examples. Dieterich considers the disease in question to be simple inflammation of the pleura involving the parenchyma of the lungs, with a tendency to a special disorganization of the same, which has its source in the plasticity of the blood and the peculiar structure of the lungs in the race *bos;* and he designates it pleuro-pneumonia epizootica. He has, however, made a mistake in the character of the disease, it not being true pneumonia; and this first error makes him commit a second, and then, to be consistent, he denies its contagious nature.

Wagenfeld concurs in the opinion of Dieterich as to the non-contagious nature of pleuro-pneumonia, because he considers it to be a rheumatismal inflammation of the pleura, and designates it by the name of *pleuritis-rheumatica-exudativa.*

The statement that this malady attacks only those animals that are badly fed and in low condition, is incorrect. Those who have watched this disease have agreed that it spares neither age, sex,

nor constitution; that it attacks the strongest as well as the most debilitated animals; that it has prevailed in localities which possessed all the requisites necessary to health, as well as in those which, being low, were damp and unhealthy: in conditions of the atmosphere the most opposed to each other; also whether the food given be green or dry, or the animals were kept in stables or in meadows; and all these circumstances have been alike impotent in checking its progress. One might almost conclude from this that pleuro-pneumonia possesses an independent cause, and is contagious.

The inoculations instituted by Sick, with those made by Dieterich with the mucus from the nose, the saliva, and the blood taken from diseased animals, also the serum obtained from the lungs, and the almost immediate contact of animals by cohabitation, have, however, all had only a negative result. In Hanover, both the mucus and the saliva of diseased animals were applied to the Schneiderian membrane of some healthy animals, and the absorption promoted by friction; likewise setons soaked in the liquids secreted from the same membrane were inserted underneath the skin, but without any effect. If the inoculations by Dieterich and Sick had no effect, and those at Hanover were followed with the like result, would it not warrant us to doubt, and that without further examination, the transmission of pleuro-pneumonia by contagion? But experiments by Vix, subsequently instituted, have proved diametrically opposite in their results. Vix introduced a portion of the diseased lungs, while warm, under the skin of the dewlap of a healthy bull; a second portion of the same lungs, which had been macerated for ten minutes in cold water and afterwards squeezed, was likewise placed in the same part of a cow. On the sixth day both animals were diseased, and presented all the symptoms of pleuro-pneumonia. The cow died on the 13th and the bull on the 18th day after the inoculation. At the sectio cadaveris, all the lesions consequent on pleuro-pneumonia shewed themselves; such as effusion into the chest, increased volume and hepatization of the lungs, these organs being covered throughout with patches and striæ of a darker colour and gangrenous aspect. Their parenchymatous structure, however, was not so dense as it is generally found in this disease, and there was also the absence of the yellow plastic matter commonly seen on the surface; but the cha-

racteristic sign which distinguishes the epizootic pleuro-pneumonia from all other inflammations of these viscera, namely, the marbled aspect, was present.

We have placed in opposition these experiments by Vix and those of Sick and Dieterich, without, however, drawing any conclusion favourable to the contagious nature of the disease; and although agreeing with Niemann, that inoculation alone would be decisive, we think with him, that as yet it has proved nothing, because it has not been repeated often enough, and every necessary precaution has not been taken.

The advocates of contagion are unanimous in agreeing with the opinions of Huzard, which they accept as positive, notwithstanding that he has expressed himself with a wise reserve, which leaves it still an open question, of which the following passage is a proof:—"As to the contagious nature of this disease, so many general causes seem to act simultaneously, that it is difficult to say any thing positive on this head.

"I have made some experiments by inoculation, at Paris, and also on the cohabitation of an affected cow with a healthy one; but the length of time required to obtain any results has rendered it impossible for me to follow the subject up, and it is not likely that private individuals will undertake similar experiments. On the other hand, what can be expected from experiments tried in the very centre of an infected district, and on animals which might have the seeds of the disease within them long before they were submitted to any experiments made on them, such being continually exposed to the influence of the as yet unknown causes of the disease? It is in the veterinary schools, or the rural establishments maintained at the expense of the government, where such investigations can alone be carried out with advantage.

"I possess no positive fact, no unobjectionable experiment, by which to establish the contagious nature of this disease. When we look for instances of contagion, we do not meet with them only in certain localities, but wheresoever pleuro-pneumonia has prevailed, and there it has been transmitted from the sick to the healthy. In analyzing facts, we never find the disease spreading itself suddenly in a herd, but generally attacking one or two individuals, and almost always those which have been recently bought and introduced into the herd. After a short time the number of

cases will increase, and then as gradually diminish, disappearing only when all, or nearly all, the beasts have contracted the disease. Those cultivators of land who rear their own cattle, and who do not stock their stalls by new purchases at fairs and markets, have been, up to the present time, free from the disease; while, in the same locality, those who have been otherwise circumstanced have had their stock decimated by it. In localities where the system of stabling cattle is adopted, the progress of the disease has been slower than where animals have had free communication with each other, as is the case at grass. The first animal attacked communicates the disease to the two nearest to it, on the right and left, and this goes on and does not cease until the death or cure of the last individual in the stable, unless the place is badly ventilated, in which case the infected atmosphere takes a wider range, and acts indiscriminately on all the animals. This slow progress, owing to the virus being but slightly volatile, explains the cause of the existence of the disease in some localities for several months, and even for years.

"It also happens that healthy cattle, placed in stables which have not been disinfected, become diseased. Finally, the possibility of checking the progress of the disease by a well-observed separation, when taken in time, is also in favour of contagion; for when the diseased animals are removed from the healthy ones, the disease is speedily checked, and confines itself to the destruction of a few individuals only."

We will add, however, that we do not think that this disease, in our country at least, owes its origin to contagion, or that it belongs to the class of contagious diseases generally. On the contrary, we think that its development may be spontaneous, and we should direct our attention to general causes which are in operation when we perceive it to be invading, and that in a few days, several stables at the same time, and attacking a greater or less number of individuals. Yet it would seem that in every country where pleuro-pneumonia has existed, numerous instances of the disease arising from contagion have been witnessed: for instance, in Switzerland, Germany, Italy, France, Holland, and Belgium.

The many cases of this disease that were observed by Wirth in Switzerland, in 1823, led him to presume that contagion was the alone cause of the disease; since only those animals contracted

it which had been in immediate contact with affected animals, these being strangers to these localities, either in the stables, at grass, or at the common watering-troughs; and not one head of cattle of those which had been sequestered was attacked. Fey, who had frequent opportunities of observing the pleuro-pneumonia, has seen it confined to a few stables, and even to a few individuals, where the separation was strictly adhered to. This circumstance induced him to consider it a contagious inflammation of the lungs.

In the spring of 1812, Ithen treated this disease in Switzerland. Two cows recently bought and placed in the stable of a farmer, in the month of February, became first affected, and soon fell a sacrifice. Those that stood next to them quickly shewed symptoms of the malady, and also died. The proprietor then sent his herd to the pasture on the Alps, where other cattle were; and all that came in contact with the suspected ones contracted the disease. Ithen succeeded, however, in checking its progress, by carefully separating the healthy animals from the sick and suspected ones.

Gerlach relates that, in the month of November 1835, the pleuro-pneumonia epizootica broke out at a farm in the principality of Anhalt-Dessau, among a herd of sixty head of cattle. Ten cows, bought six weeks previous, had been placed at one end of the shed, separated from the others by a five-feet-wide passage. Of these ten, two became diseased ten days after; and soon six others, three of the old ones and three of the last arrived, shewed symptoms of the malady. On the twentieth day nine new cases occurred, among which were two of the last that arrived; and, dating from that time, they multiplied so fast, that within four weeks of the first outbreak the whole herd was affected.

The information obtained proved that the ten cows had been brought from an infected district; that, after the first day's journey, they had passed the night in a stable occupied by healthy cows, and that these became likewise attacked with the disease four weeks after their departure.

"There arrived at a farm in Bohemia," says Veith, "a beast which soon exhibited signs of the pleuro-pneumonia, and died in consequence. Those animals that were placed next to it soon became diseased, and the affection successively spread from one

to the other as they stood, no precaution being taken, and thus but few escaped. A small number were cured, but they had afterwards to be sent to the butchers to be destroyed on account of it. Fortunately, the disease confined itself to this stable; the cattle of the village, though submitted to the same hygienic regimen, and exposed to the same general influence, remained healthy. This affection, entirely unknown, had never been observed in that district within the memory of man, neither in the pastures nor the habitations; therefore no other cause could be assigned but that of contagion: had there been any other, it would have spread more generally."

The following observations are by Professor Hertwig, of Berlin: taken isolately, they would appear conclusive, but they are also corroborated by a number of other facts:—

"At the farm of Count Hardenberg, in Lichtenberg, there was a herd of eighty cows, two bulls, and about ten head of young stock. For two years previous the whole had been perfectly healthy, and never been heard to cough. They were, moreover, located in spacious and airy stables, being only sent into pasture during the summer months, and then brought into the stables every night. The pastures were on elevated situations, either natural or artificial. Morning and night they had a regular allowance of green clover or grass in the summer, hay in the autumn, and during winter they were fed on the residue of a distillery, to which dry provender was added, all being under the care of a superintendent. In the last day of the month of February, 1827, six cows and one bull, apparently in perfect health, were bought of a strange dealer and placed in the stable. The bull and two of the cows had not been there long before they began to shew symptoms of pleuro-pneumonia; one cow recovered, the other died. In the beginning of April two old cows, which stood next to the abovementioned, were attacked by the disease, and died from the sixth to the tenth day after the attack. From that period the cases multiplied so quickly, that, at the end of July, forty-seven cows had been attacked, and thirty-three out of that number had fallen a sacrifice.

"The superintendent, acting on the opinion of some veterinary surgeon that the disease was not contagious, had neglected the sequestration of the healthy from the diseased animals during the

first fourteen weeks; but afterwards it was strictly enforced, and the disease made no further progress. Hertwig, having at this time three healthy cows at his disposal, resolved to place them in the centre of the infection,

"A piebald cow, six years old, coming from a district not known, was watched from the beginning of April until the 29th of May, during which time she exhibited all the external signs of perfect health. She was then driven to Luhtenberg, a league and a half from Berlin, during fine dry weather, and placed in a spacious stable between two diseased cows, in whom the pleuro-pneumonia was fully developed, and had existed in the febrile stage from one to four days: she was tied up in such a manner as to partly inhale the air expired by her two neighbours. She was also inoculated with the mucous discharge from the nostrils of another cow, in an advanced stage of the disease, on the lining membrane of the nose, and saliva from the same animal was freely applied to the tongue, and two setons, dipped in the blood taken from the jugular, were inserted on the left side of the neck. The subject of this experiment was allowed no other food than that left by the diseased cows, and then only after it had been impregnated by their breath and saliva.

"On the 1st of June one of the two cows died. The body was not removed for twelve hours after, and her place was immediately filled up with another badly diseased cow. Up to the 1st of July nothing remarkable occurred to the piebald cow: the appetite and rumination were natural, the pulsations were 48, and the respiration 12 in the minute; there was no cough, and she gave about eight quarts of milk a-day. On the 5th of July she went to pasture with the other cows, but during the day only; at night she always occupied her place between the two diseased cows. On the 1st of July she was placed next to a cow highly diseased, and which died in thirty-six hours; after which she was removed to her old place.

"On the 8th of July there appeared a hard tumour on the neck, where the setons had been inserted, which was adhering to the skin and subjacent muscles, accompanied with much heat, and occupying the whole inferior region of the neck, exhibiting the cicatrix of the inoculation in its centre. By the 11th the tumour had acquired considerable development, but without any febrile excitement being present.

On the 12th, loss of appetite was present, with dulness and prostration of strength, alternate change of heat and coldness of the skin, &c., occasional cough, pulse above 50, and respiration difficult and accelerated. The same symptoms were observed on the following day, and she died on the 19th of July.

Autopsia.—The tumour on the neck extended from the point of inoculation to the shoulder-blade. On the skin being removed, the muscles appeared paler than natural, except those which were the seat of the tumefaction; the colour of the latter being darker, as well on the surface as within their substance, and surrounded with a quantity of plastic matter, which so completely enveloped the fibres that this texture could hardly be distinguished. All this mass was indurated, and offered much resistance to the knife; notwithstanding which the muscles were easily divided, and these presented the same marbled appearances as lungs which had undergone the disorganization peculiar to the pleuro-pneumonia epizootica. Nothing remarkable existed in the abdominal cavity. The pleura pulmonalis was of a dark red colour, and covered with a thick coat of plastic matter: one-fourth of the anterior portion of the left lobe of the lungs presented a hard, compact, heavy mass, marbled externally as well as internally; the remainder of the lungs was nearly normal: the whole of the surface, however, was abundantly covered with plastic matter; the pericardium and diaphragm were in the same state. The heart, the trachea, the bronchial tubes, and the thoracic portion of the œsophagus, appeared healthy.

A second cow, four years old, was placed, from the 1st of July to the 30th of August, exactly in the same situation as the preceding one, with this exception, the inoculations were not had recourse to. At this date (30th of August) she exhibited all the symptoms of pleuro-pneumonia, when she was subjected to medical treatment, and recovered. The state of convalescence, however, was long, and the loss of flesh considerable; but, under the influence of an abundant and judicious dieting, she at length fattened, and was sold on the 29th of November to a butcher. At the opening of the body, an induration of about four inches in diameter, and inclosed in a tough membrane, was found in the left lobe of the lungs. The tissue of this induration resembled,

in every respect, the peculiar alteration effected by pleuro-pneumonia.

The third subject of experiment was a cow five years old: she was placed in the very focus of infection from the 21st of June to the 14th of July, when she contracted the disease, and, being subjected to treatment, she recovered; but the attempt at fattening was unsuccessful. She was sold on the 30th of November to a butcher, and killed on the next day. The half of the left lobe of the lungs was found hepatized and marbled.

The fourth was a cow eight years old, on which the disease had no effect, although placed in the same conditional circumstances as the preceding cases.

The following observations, added to the foregoing statement, will be another proof of the contagious nature of the pleuro-pneumonia epizootica. Six cows and a bull were bought of the same dealer who sold the former, and were sent into the pastures of Count Hardenberg, at Tempelberg and New Hardenberg. These seven head of cattle sojourned at Lichtenberg till the 20th of March, and from thence were driven to their destination. Some days after their arrival, one cow presented symptoms of pleuro-pneumonia, and died in a few days. Almost directly after this, a second and a third cow contracted the same disease, and these were followed by the remainder of the lot. Towards the middle of April one case appeared among the old stock at Tempelberg, which stood next to the fresh arrivals. She had never been affected with cough or any other symptom of disease previously; and in the month of May the disease extended itself throughout the whole of the stock at Tempelberg and New Hardenberg. In the last named place the healthy animals were separated from the diseased ones from the beginning, and from that time the number of cases diminished; and at the beginning of the month of June the disease had disappeared, while at Tempelberg, where no precaution was taken, the disease continued until the month of August.

Convalescent animals, according to Ernst, can likewise propagate the disease by contagion. It extended in this manner to several districts, where no other cause could be discovered. A fact reported by Gerlach confirms the assertion of Ernst. A farmer

possessing thirty head of cattle placed a convalescent ox between two heifers. On the fourth day after the cohabitation they were attacked by the disease; the ox and the two heifers were removed, and the stable purified by means of chlorine, and no new cases occurred in it.

The whole of the preceding accounts evidently prove that the pleuro-pneumonia epizootica is contagious; but is it equally transmitted by immediate contact? Several veterinary surgeons are of opinion that it is, and Tscheuliur quotes an example:—A Jew purchased an ox which he placed in a stable containing three other beasts. The ox had been there only a few days, when he began to cough, and he died on the twelfth day of pleuro-pneumonia. A few days elapsed when the cow which stood next to him became diseased, and also died; and the two others shared the same fate. The farrier of the village who had treated these cases came frequently in contact with his own cows, which he was in the habit of feeding, and they all contracted the disease, and died.

Professor Delafond, now a believer in contagion, but which at first he doubted, has collected such a number of facts, as have completely convinced him of the contagious nature of this disease. He has classified the facts which he has reported, and which prove that the disease is transmitted both in the stables and in pastures, and through the offal of the carcasses. Other observations confirm the infectious properties of the offal of the carcasses of animals that have died of this epizootic. Hermann, veterinaire, Switzerland, relates a case of an ox affected with pneumonia, which dropped dead as he was led to the common watering-trough: the other cattle smelled him as they passed by; and within from six to eight weeks after twelve of them were attacked with pleuro-pneumonia, and from that time the disease spread and invaded the whole district.

M. Vanderwattyne, veterinary surgeon at Bruges, who has been kind enough to communicate several cases of contagion that he observed in his practice, quotes one in which the disease was evidently to be attributed to cadaverous infection.

From 1832 to 1833 the pleuro-pneumonia broke out among the horned cattle of M. Deville, distiller, at Eerneghem. The same year it also attacked successively those of Hubert van Roose, Pierre Delock, Pierre Vandenberghe, P. Hendryx, the

widow Philippe Viaene, J. Serruys, L. Marque, all small cultivators adjacent to the distillery. The constant mutation of animals necessarily occasioned by these kind of establishments, and which are in general bought in the public fairs and markets, sufficiently explains the manner in which the disease was introduced in the large stables of M. Deville. The major part of the diseased stock of M. Deville was sold to a butcher at Ostend. On one occasion one of them was unable to continue the journey, and fell near the farm of a cultivator, Vergaauwen, at Snaesker. The butcher obtained leave from the farmer to transfer the beast to his farm, where it was slaughtered and cut up. Some time after this the pleuro-pneumonia broke out among the cattle of Vergaauwen, and he lost eleven milch cows, the best part of his young stock; nor did his bulls escape, which were kept in a separate stable.

Confined as it formerly was, M. Delafond observes, to the mountainous districts, the Vosges, the Jura, the Dauphiné, Piedmont, Switzerland, the mountains of Italy, and particularly to the stables of Paris and the Banlieu, the pleuro-pneumonia has for the last ten years extended itself to the plains and the pastures. Its extension by contagion, however slow, goes on increasing: it prevails now in all localities where the mutation of animals is frequent, either for the advantage of fattening, the secretion of milk, or otherwise. In districts where breeding is the object, and consequently changes are rare, as in Basse Normandy, Bretagne (Little), Auvergne, and Limousin, the Mans and the Vendée, cattle have up to the present time remained free from pleuro-pneumonia. This important observation, to which we before alluded, furnishes us with a strong proof of contagion which we have had an opportunity to test in 1832, and it is since that period that our conviction has been confirmed. Two cultivators of Shaffen, a village near Diest, possessed each a large number of cattle: the mutations by buying and selling were frequent with one proprietor, while, on the contrary, another reared his own stock, among which strange cattle were never introduced. The epizootic invaded the stables of the first named, and carried off the whole of his stock, which he renewed three times, without being able to get clear of the scourge. He then resolved to pull down the stables and build new ones, and to stock them with cattle obtained from the second cultivator: from that time the

disease ceased its ravages, while those on the farm of the last named had escaped it altogether.

In the neighbourhood of Tournay the epizootic only prevails among those who buy their cattle in Flanders.

At Waterloo it is unknown to those farmers who breed their own stock; while, on the contrary, it prevails among those who stock their farms with cattle bought at fairs and markets, though they are in the same parish.

It is a well known fact that it is in Flanders the disease has committed the greatest devastations. There is hardly a village or a hamlet where it has not had its victims. With one exception, however: in a letter I received from M. Vanaken, veterinary surgeon at Zele, he informs me that, on the left bank of the Escaut, there is a hamlet on the outskirts of the town of Termonde, named Sint Onulfsbrock, containing about twenty farms, where the importation of fresh cattle is of rare occurrence, but where all the predisposing causes, such as narrow, low, and ill-ventilated stables, acrimonious and sour provender, want of litter, and frequent inundations, exist; notwithstanding which there has not appeared the least trace of the epizootic, while it has committed sad ravages in all the adjacent localities. This fact adds fresh strength to its being contagious.

In the British Isles, where the importation of cattle is prohibited, the pleuro-pneumonia is up to the present time unknown*.

[To be concluded in the next Number.]

COMMUNICATIONS AND EXTRACTS.

A Sinking of the Spine—Sciatica, and diseased and imperforate Gall-Bladder, in a Cow.

By Mr. W. A. Cartwright, *M.R.C.V.S., Whitchurch, Salop.*

Dear Sir,—As some little return for the pleasure I have had in reading the Journal of the "Veterinary Medical Association," I have sent you the accompanying case, as an illustration of rheu-

* This was written before the alteration in the Tariff. Whether the disease has been since introduced, and by that means, might be a subject worthy of investigation.—*Translator.*

matic affections, and a cause of malformation of the pelvis in a patient belonging to your department.

Sincerely wishing you success in your arduous and highly important undertaking, and hoping you and your colleagues are in perfect health,

I remain, dear Sir,

Your's, most respectfully.

J. B. Simonds, Esq.

In the month of April 1844, a six-year old cow, half bred, belonging to Mr. R. D. Smith, of Blacoe, calved and did well after it. About July of the same year she was taken ill, having, as they said, "a thorough cold," from standing, with others, in the canal. There was a general stiffness of the whole frame, but the principal symptom was lameness in the off fore leg, and a quivering of the muscles about the shoulder; but as no foul or other disease could be detected to account for the lameness, it was therefore attributed to rheumatism. I was not in attendance on the case, but am informed that in the course of a few weeks she became pretty well again from the curative means adopted.

In the month of August she was again taken ill and lame, but this time the attack was in the off *hind* leg. There was much quivering, with spasmodic action of the muscles of the extremity, especially on touching the parts, or by leaning against her whilst she was being milked; she had also great difficulty in rising up when she was down. From this time her lameness moved about from one hind leg to the other, and there was a general stiffness in the hinder parts, with quivering of the muscles situated there. About this period also she began to sink in her loins. Her general health and appetite, however, appeared good, and she milked almost as well as any of the cows on the farm.

She was treated upon the hydropathic system, having wet cold bags thrown over her until profuse perspiration had existed for a length of time, after which stimulating liniments were applied, and her clothing gradually taken off. By this treatment she got much better again, but soon after she had a relapse, from which she never recovered.

On the 16th September, 1844, I saw her for the first time. She was grazing heartily in the field, and looked very lively. I

was especially called in to see her in consequence of the great depression or falling in of the spine exactly opposite the hips. When she was purchased she was a remarkably straight cow along the back to the tail, and remained so until August last, when she gradually sank in the loins to the state I now found her in. Her sacrum and hind parts stood considerably higher than across her loins. There was a gradual sinking of the dorsal and lumbar vertebræ, until we came to the union of the last lumbar with the sacrum, at which place it formed a very striking contrast of depression to the sudden projection of the sacrum, which was four or five inches higher than the former. I also observed that the off hip was much enlarged. Upon pointing this out, the owner said he could often hear a grating or cracking of the bones about the hips when she moved.

In consequence of her getting gradually worse, and her symptoms of weakness and debility likewise increasing, it was thought advisable to have her destroyed. She seemed to get worse the heavier she became in calf; and as she had nearly four months to go, there seemed to be but little chance of her surviving; indeed we believed that she would be quite unable to rise even with assistance, and which she could barely do now. We therefore on this day, the 13th January, 1845, had her killed.

Examination.—On removing the abdominal viscera, we were particularly struck with the appearance and small size of the gall-bladder. It was about the length, and almost the shape, of a tolerably sized horse-ball, but more irregular in form. I tried to force its contents out, but could not: I then cut it away from the liver, and again tried to empty it of its contents by squeezing it, but could not force a drop of bile out. I then laid it open, and found it contained about an ounce of dark-coloured fluid, with a little coagulum in it, similar to urine voided by a cow that has black-water, but it had not the least appearance of bile. I could not detect any opening out of it. The inner membrane was coated here and there with particles of ossific matter. It was the smallest gall-bladder I ever saw in the cow, and I should say, most positively, that no bile could get into it. The thickness of its coats was about as usual, but they were materially altered in texture. The liver was next cut into. It was of a firm consist-

ence and of a dark brown colour; but there was not the least appearance of bile to be seen in it: it was small and flat.

The stomachs were healthy, and digestion appeared to be going on well in the intestines. There was not the least constipation of the bowels present.

I had the lumbar vertebræ and pelvis sent home for closer examination, and the following appearances were observed:—

Hip Joints.—When separating the pelvis from the hind extremities, I was aware that there was disease in the joints, but I had no idea to what extent it had gone.

Off Hip.—In the centre of the acetabulum there was an immense cavity, an inch wide, and nearly an inch deeper than natural, and which would hold a walnut. From this cavity, both superiorly and inferiorly, there was a breach, at least an inch wide, extending into the walls of the acetabulum, but which was not very deep. In some places these cavities were covered with extravasated blood; in others the bone was uncovered and carious, but the greater part was covered with a white fibrous membrane. The upper articulating surface of the acetabulum (towards the sacro-sciatic notch) was in a healthy state, and formed a great contrast to the other parts. It was much diseased where the ligamentum teres is inserted, of which I saw scarcely any remains. There was great thickening around the joints, and the parts were very vascular.

Near Hip.—The whole of the centre, and the posterior wall of the acetabulum on this side, was totally void of its cartilaginous covering, instead of which the centre, for an inch in diameter, had a smooth, hard, and polished surface of bone, from friction. For three parts of the circumference of this central portion of bone, there was a distinct narrow demarcation, filled up with a fibro-cartilaginous substance. In other places of the diseased bone there were several deep, rough, carious cavities, partially lined with extravasated blood or fibrous membrane.

At the superior part of the acetabulum there was a similar portion of sound cartilage as in the off-hip joint. The superficial extent of disease in this joint was quite as great as in the other, but ulceration had not gone to such a depth.

The apices of the articulatory surfaces of the heads of the femoral bones were very much flattened and worn away, where they had

been in apposition with the diseased surfaces of the cotyloid cavities. The near one was not at all carious, but it was smooth, flat, and as if it had been polished. The other was also flat, but considerably diseased.

Within the pelvis, and exactly opposite the cotyloid cavities, there was, on the off side, an ossific tumour the size of a man's fist, but that on the near side was not quite so large.

The space within the pelvis, between the two tumours, was only two inches; and I do not believe that the cow, had she gone her full period of utero-gestation, would have been able to calve, in consequence of this malformation; which, no doubt, would have been considerably larger by that time, as she had three or four months to go.

There was also serious disease taking place on the articulatory surface of the head of the radius on the off side.

At the union of the last lumbar vertebra with the sacrum the articulations were in some places rough and abraded, and the capsular ligaments contained but little synovia. There were also sulci formed for the reception of the synovia. I did not lay open the spinal canal, as I wished to preserve the parts entire.

Observations.—On first seeing this cow, I was inclined to attribute her stiffness and lameness behind to the great depression of the spine. My opinion now is, that it was from first to last a decided case of rheumatism, brought on, as the owner suspected, from standing in the canal, or from some atmospheric influence.

However some may doubt the existence of sciatica, or rheumatic affections of the joints, in our patients, I think this case must convince the most sceptical person on the subject. Most likely the spine was also affected. The prolonged and excruciating pain that this poor animal must have suffered, I can well imagine from my own experience of the disease; and so will any one that has had an acute attack of rheumatism.

Since writing the foregoing, I have had the bones of the pelvis boiled; and one would almost think, from the general appearance of the parts about the hip-joints, that there had been a fracture on each side. If there has, I still am inclined to think that the original disease was rheumatism, which might have caused a deposit of soft ossific matter about the joints.

A forcing up of the upper part of the bones of the hips (being diseased), perhaps, may account for the unusual height of the sacrum, and the apparent depression of the loins.

It would have surprised any one how well she walked about just prior to her death, and, indeed, all along.

Cases of supposed Poisoning of three Sturks by common Salt.

By Mr. J. J. Hughes, *M.R.C.V.S., Longton, Staffordshire.*

On the 30th December I was hurriedly summoned to Sideway farm. On my arrival there I found two sturks very ill, and one dead. Mr. G. had purchased these animals, and others, to the number of fourteen, at a fair held at some little distance; and when they reached home, he perceived that they were affected with some trifling disease of the skin which caused considerable itching. To remove this, he ordered the bailiff to drench each of them with a quantity of salt and water. He drenched three of the lot, and then fortunately stopped, for the one that had the first dose was perceived to be very ill. I arrived soon after, but he was dead; and it was not long before another died.

The symptoms in the remaining one were—pulse 140, and fluttering; respiration nearly 80 per minute; violent spasmodic muscular paroxysms about every five minutes; mucous membranes pale; horns and mouth cold; peculiar prominence and brightness of the eye, indicating extreme pain and excitement; frequent eructations; head turned upon the side at intervals; trismus, and spasmodic contraction of the muscles of the extremities. I immediately opened the jugular vein, abstracted a large quantity of blood, and administered what oil there was in the house. In a few minutes the more urgent symptoms seemed to be alleviated; the horns and mouth became warm, and the mucous membranes injected. The symptoms recurring, I again detracted blood, but to no purpose, for another violent spasmodic attack supervened, and death closed the scene in about an hour and a half from the time of drenching.

Examination immediately after Death.—All the viscera healthy, except the stomach, which contained a considerable quantity of

ingesta. The lining membrane of the rumen, reticulum, and maniplus, was separable from the subjacent tissues with the greatest facility. The mucous membrane of the abomasum was beautifully ecchymosed, the spots varying in size from a sixpence to a mustard seed. There were also two small points of ulceration. I examined analytically a portion of the solution and also of the salt, but could not detect a particle of any thing beyond what we find associated with our common salt, such as the chloride of calcium, &c. I also examined the contents of the stomach, but could detect nothing injurious beyond the salt. There is no cause of death that I can satisfactorily assign, except it be that the salt was given in a state of suspension before it was actually dissolved; and the well known sympathy which exists between the integument and mucous membranes, especially in skin diseases. This view is further corroborated by the fact of what inflammation there was being petechial. It was fortunate that the man desisted at the time he did, otherwise the whole of them might have been sacrificed. I fancied at first that some portion of the solution might have made its way into the trachea, but, on examination, I found such was not the case.

Poisoning of Calves by the Aspidium Lobatum, or close-leaved prickly Shield Fern.

I was sent for, on the 6th August 1844, to Park Hall farm, to examine five yearling calves that had died suddenly, and two others that were nearly dead. They had been feeding on some very hilly land, and, owing to the long-continued drought, there was a great deficiency of grass. There was, however, a large quantity of the above plant growing luxuriantly where they were pastured, and these calves, labouring, probably, under some little irritation of the digestive organs, arising from a scarcity of water, had eaten a quantity of this fern.

The symptoms were, great excitement of the circulatory system; profuse discharge of saliva; urine frequently voided, and in small quantities; fæces consisting of little more than mucus at first, but ultimately becoming bloody and fœtid; the alvine evacuations

caused intense pain; spasmodic twitching of the muscles, &c. The treatment I adopted consisted in the administration of a diffusible stimulant, combined with opium and linseed oil; but death soon terminated their sufferings.

Post-mortem examination presented the stomachs full of dry vegetable matter; the lining membrane easily separable from the subjacent tissues and ecchymosed in patches, the centre of many being ulcerated. The ingesta consisted of this fern principally. The mucous membrane of the intestines and bladder was intensely inflamed, and in many parts of the former half masticated leaves of fern were found sticking. Had these animals partaken of even a larger quantity of this plant mixed with a sufficiency of ordinary herbage, they would probably have been unaffected by it.

The singular Effects produced on the Horse by Eating of Wheat.

By Mr. T. M. Leech, *M.R.C.V.S.*

While residing at Great Yeldham, Essex, my attention was directed to two cases, in which the effects produced by wheat upon the horse were most marked. The history of the cases is as follows:—A horse was sent down to the infirmary to be examined for lameness in the off hind leg. Judging, from the peculiar action, its seat to be the foot, I had the shoe taken off and the sole well thinned, but I could find nothing to account for the severe lameness and evident pain the animal was suffering. During my examination the horse dunged, and my attention was directed to the semi-fluid state of the fæces, in which were numerous grains of wheat. On feeling the pulse, I found it to be beating between 80 and 90 in the minute, and very full; the breathing also was much accelerated. I detracted blood to the amount of six quarts, and gave one ounce of aloes in a soft ball, and ordered a mash diet, notwithstanding the fæcal matter was soft. After the bleeding, the animal seemed considerably relieved; so much so, that he was enabled to walk home, a distance of two miles, with scarcely any lameness, and ultimately got well.

The next case likewise occurred on the same farm, but proved more troublesome, as the sequel will tell. Some time near the close of the evening of the same day, we were called up to the farm to a colt, which, to use their expression, was "stuck fast," and could not move at all. On our arrival, we found the colt to be, as the man had informed us, obstinately standing in one position. Fancying this animal was suffering from the same cause as the other, we emptied the rectum by the hand, and found the fæces completely studded with wheat. The following were the symptoms evinced by the animal:—Pulse 120, and full; breathing greatly accelerated, say 30 in the minute; considerable injection of the visible mucous membranes; ears, feet, and legs, warm, but not hot; the egesta in a natural state, except that it contained wheat. The treatment adopted that night was, bleeding from the jugular to the amount of seven quarts, and the administration of a dose of aloes, accompanied with back-raking and injections of tepid water. On the next morning the animal evinced the following symptoms:—Pulse 100, and very small; breathing still much accelerated; bowels not acted upon in the least, and he obstinately stands in one position; mucous membranes highly injected; ears cold, and likewise the legs. A mustard embrocation was applied to the sides and chest, which had a most remarkable effect, for up to this time the animal could not be made to alter his position; but now he began to pace round his box, and the circulation by this means became considerably increased in tone, as was also the breathing in frequency: during this state of excitement he was bled from the brachial veins until syncope took place, and he fell. After this had passed off, the following draught was exhibited: oleum lini Oiss, spt. æther. nit. ʒij; the rectum was emptied, and clysters ordered to be repeatedly thrown up. The medicine not having operated by the evening, and the colt having resumed his standing position, while as yet but little had been gained from the treatment adopted, another pint of linseed oil was given, the clysters ordered to be continued, and several quarts of gruel were horned down, the animal not having eaten any thing since the attack. The next morning the breathing and pulse were considerably reduced in frequency, and the colt seemed somewhat better; but now his feet became very hot and tender, as if he was labouring under laminitis. In his present state it

was impossible to remove the shoes; he was, therefore, bled from the plantar vessels, which seemed to give considerable relief. On the following morning the medicine began to operate; he was now ordered thick gruel, and any thing he would eat, and he ate a little bran and chaff with clover-hay and some grass. To all appearance he is much better, and we have now hopes of his recovery; but his pulse still keeps up, and his breathing is also quick. The following ball was given every three hours: ℞ ext. belladonna ʒss, pot. nit. ʒiss. On the following day, the purging not being abated, we gave opium in ʒss doses every three hours, until he took six doses. Next day:—We were now enabled to remove the shoes, and the colt appeared much better, having eaten pretty freely, and partaken of thick gruel. The fæces also have become altered in character, being more consolidated. Nothing more was ordered to-day. The colt now gradually improved under good nursing, and the perseverance of the extract of belladonna in conjunction with small doses of the nitrate potassa, until his health became re-established.

Remarks.—It is a strange and unaccountable disease which affects the horse after eating wheat, and many are the opinions advanced with regard to its supposed modus operandi. It may be requisite to pass them in review, with such remarks as they may give rise to. Some persons say that the grain, when in the stomach, is subjected to the influence of heat and moisture, and there undergoes a change analogous to fermentation; and as a consequence of this, it produces inflammation of that viscus, and, by a metastasis of the inflammation, the feet become affected with laminitis: this theory, I confess, is a very plausible one, but I cannot concur with its advocates. It is not my opinion that any fermentation whatever takes place, and, even if it did, what could we expect from the disengagement of some carbonic acid gas, and the formation of little alcohol (for these are the products of the first change during the fermentative process)? Neither have we those symptoms evinced which we might anticipate from the administration either of the former, which acts as a sedative, or of the latter, which is a stimulant. Again; have we not a disease to which ruminants are liable, commonly called "hoven," and which is owing to a disengagement of gaseous compounds from the food undergoing that change which is called fermentation in the rumen,

or first compartment of the digestive organs? But have we in this disease any symptoms similar to those evinced by the horse when labouring under the effects of wheat, and which would warrant us to conclude that it was brought about by the peculiar change that takes place when vegetable matter is exposed to heat and moisture?

There are those who contend that these effects are produced by the grain becoming increased in bulk in the stomach, thus pressing that viscus against the diaphragm, and causing inflammation of the lungs, while that of the feet follows as a secondary effect of the pneumonic inflammation. This opinion I deem unworthy of further notice.

I think, after consideration, either of the above-named cannot be considered as the way in which wheat produces its peculiar action on the horse, yet the way in which it acts I am at a loss to state. I may, however, venture to conjecture that the grain undergoes a change somewhat similar to what rye does when it becomes ergotized; when some peculiar and active principle becomes developed besides carbonic acid and alcohol; that this principle acts on the nervous system; and in consequence the circulation and respiration become deranged, inflammation supervenes, and the feet suffer from metastasis, similar to what often takes place in simple inflammation of the lungs. But the reason why this active principle should affect the system in this particular manner can no more be assigned, than that the ergot of rye possesses a specific action over the uterus, or that aloes should purge.

Case of Paralysis successfully treated with Strychnia and Counter-irritants.

By Mr. T. Taylor, *M.R.C.V.S., Derby.*

My patient was a grey colt, four years old, the property of the Midland Counties Railway Company. I was requested to attend in great haste, the messenger stating that he was fearful I should find him dead. On my arrival, I found the horse in a state of profuse perspiration, unable to move without assistance, and, when made to do so, he suddenly drew up his legs, and if not supported would have fallen: the whole length of the off side was completely paralyzed; the lips were also drawn on one side;

the ears fallen on the neck; the eye retracted within the orbit, and, on pricking him with a pin on the off side, very little sensation was evinced. Pulse 80, and oppressed; respiration not much disturbed.

I took six quarts of blood from the jugular vein, and gave the following draught:—

℞ Aloes ʒix
Opii ʒiss.

Ordered constant fomentations to the back and loins. I saw him again in five hours, and found the pulse 70, and not so much oppressed. I then gave the following ball, with directions for its being repeated every four hours:—

℞ Camphor. ʒss
Pot. Antim. Tart. ʒss
Nitr. Pot. ʒjj.

Placed a warm sheepskin over the loins, and directed the diet to consist of gruel and mashes.

On the second day the animal was very ill, indeed in such a state as to dissipate all hopes of recovery. No fæces were passed; and for the three following days he was unable to void any in consequence of the paralytic state of the muscular coat of the intestines, although oleaginous purgatives were freely administered.

6th day.—No change for the better, except that the fæces are in a semifluid state. Pulse 60; the fever balls to be given as before ordered, and allowed a small quantity of scalded hay with gruel.

7th day.—Purged freely; the paralysis remains the same, but the febrile excitement is allayed. Discontinue the sheepskin, blister the back the whole length of the spine, and give the following ball night and morning:—

℞ Strychnia, gr. j.
Pulv. Zingib.
Pulv. Gentian. āā ʒiv.

8th day.—Increased the strychnia 1 gr. each dose; the symptoms remaining the same.

9th day.—Bowels rather inclined to become constipated. Gave a laxative combined with the strychnia, which I gradually increased till the animal took half a scruple daily, and continued it for three weeks. During this period the symptoms gradually disappeared, and the animal is now quite well.

To the Editors of "THE VETERINARY RECORD," &c.

Gentlemen,—Having read with very great interest the first and second Numbers of your new periodical, "THE VETERINARY RECORD," &c., I take this opportunity of stating my high opinion of its merits. It is, indeed, a very valuable addition to veterinary periodical literature, and I have no doubt of seeing it in a short time among the leading veterinary journals of Europe, if it be only carried out in the same spirit that it has commenced; its contents being interesting, varied, and valuable.

I agree with Mr. Litt when he states, that it is the duty, and ought to be the pride, of every practical veterinarian to contribute his quota to the general stock, from which all may glean something interesting or advantageous; for I feel quite certain, that if veterinary practitioners generally would carry out the system of openly and freely contributing an account of any rare and interesting cases they may meet with in their private or general practice, accompanied with their opinions of such cases, they would establish, in a very short time, that unity among practitioners which is of such great advantage to any fraternity or profession, and especially to the veterinary profession. I for one feel quite anxious to contribute my mite, however humble or uninteresting it may be. I therefore take the liberty of forwarding to you the following hastily thrown together remarks, and, if you deem them worthy of a place in your invaluable "RECORD," they are at your service.

ON GONORRHŒA IN CATTLE.

IT is a well known fact that there are many very troublesome and sometimes serious diseases which are common and of almost every-day occurrence, yet they are scarcely ever mentioned in the highest and most respectable veterinary works of the day. I have chosen one of these diseases for the subject of the following paper. Gonorrhœa in horned cattle is commonly known in this county by the name of bull-burn, or clap. I do not contribute this because there is any thing rare or uncommon in the disease, but from knowing that it sometimes prevails to a great extent, and is very troublesome to get rid of; and occasionally it seriously affects the farmer, the dairyman, or the breeder of horned stock; and also

from having had of late a great number of cases of it in my private practice. To this I may add, that I am not aware of any thing having been advanced respecting it either in the standard or periodical veterinary works lately published; and in the justly celebrated and interesting volumes on Cattle written by Youatt, Spooner, and others, the above named disease is, I believe, never mentioned by them.

Gonorrhœa, bull-burn, or clap, in horned cattle, is a local disease affecting the mucous surfaces of the parts of generation, in either male or female. I have frequently met with it in two forms, which, for the sake of distinction, and the reasons hereafter to be given, I will designate simple gonorrhœa and virulent gonorrhœa. Simple gonorrhœa makes its appearance in the female (more frequently in the young than the old) about four or five days after copulation, and is known by the following symptoms:—unhealthy feel of the skin, arched back, diminution of the secretion of milk, shaking and whisking the tail about after voiding urine, redness and fulness of the parts of generation, and a puriform discharge from the vagina. In the male I have known this form of the disease make its appearance in three days after copulation. It is known in the male by the following symptoms:—swelling and redness of the prepuce, or sheath; a continual discharge of matter from the mucous surface of the generative organs, with evident indications of great pain after voiding urine.

The causes of simple gonorrhœa, in my humble opinion, are the following:—the hot, inflamed, and irritated state of the system, of either the male or the female (but more frequently the female), at the time of copulation, and which is sometimes caused by the beast running a long distance before getting to a bull, bellowing and roaring all the way; or the animal may be naturally over-hot at the time: consequently the blood is in an over-heated state; and when the semen of the male (which is naturally of a stimulating nature) falls upon the mucous surface of the vagina of the female while in this overheated and irritated state, it sets up a slight inflammation of the parts, causing a purulent discharge from them, which is infectious. I have known innumerable cases of this kind of gonorrhœa make their appearance in the cow after copulation, and the bull by which she had been served never shewing the least symptom of the disease; but if a bull has had

connexion with a cow that is labouring under this the first form of gonorrhœa, he will be immediately affected with the more acute form of the disease, which I have before designated virulent gonorrhœa, because it is the result of a connexion with a diseased cow. The first form of the disease may make its appearance in either bull or cow after copulation, when both bull and cow were in an healthy state previous to the act of copulation; consequently, when either a healthy male or female comes in contact with a diseased male or female in the act of copulation, the venereal poison is communicated from the infected animal to the healthy one, which poison, if applied to the mucous surfaces, produces inflammation and ulceration, forming a sore which is similar in every respect to the true venereal chancre of the human subject. The symptoms of this form of the disease are similar at the commencement to simple gonorrhœa, or the first form; but as the disease progresses they become aggravated and are more intense. Inflammation first shews itself in the organs of generation, and, if the mucous surfaces be now minutely examined, they will be found to be covered with small red pimples, which in a few days become larger, and, bursting suddenly, form deep-seated ulcers, which, if on the penis of the male, often prove a very serious affair; for if not stopped, two or three of these ulcers will run into one, and in some cases the penis will be partially destroyed by them. When the disease has arrived at this stage, the animal voids his urine with great pain, in small quantities and by jerks, like water from a syringe: the prepuce becomes ulcerated to an alarming degree, the testicles are swollen, and on compressing them the beast gives indications of extreme suffering. The venereal poison now begins to be taken up into the absorbent glands, producing a bubo, and from this being conveyed into the circulation, fatal results most commonly follow; but by a timely application of proper remedial means these may be prevented.

The treatment I have found from practical experience to be the best, and I have now tried it for a number of years, is the following:—If called to a cow that is thus affected, I examine the diseased parts, and ascertain whether it is the first or second form of gonorrhœa; and if it be a case of simple gonorrhœa, I administer a saline purgative, combining with it the nitrate and carbonate of potash. I then order the vagina to be well washed with the following lotion two or three times a-day:—℞ Cupri sulphat. ʒij,

Plumbi acetat. ʒiij, Aquæ Css, misce; the sulphate of lead formed being separated by a filter. If the symptoms are not removed in about three or four days, I order the draught to be repeated; but this is very seldom necessary, for the disease soon yields if attacked in time. If the disease shews itself in a male, I order the same kind of medicine and the like lotion to be thrown into the sheath by means of a syringe twice or thrice a-day; I also detract a little blood. In the male I repeat the purgative draught for three days following, and continue the use of the lotion until the discharge ceases.

When called to a case of virulent gonorrhœa, if a female, I generally find the same treatment to answer very well with the addition of venesection; but if the patient happens to be a male, then comes the most difficult part of the business. As soon as I have ascertained the fact that he is labouring under this, the second form of the disease, which I easily can by the degree of inflammation and the ulceration of the parts affected, I have recourse to blood-letting to syncope; and in about half an hour after I exhibit the abovementioned draught. I next cause the animal to be cast and placed on his back, the penis to be carefully drawn out of the sheath and fomented with warm water for a quarter of an hour, and then well washed with the astringent lotion. I repeat the draught, fomentations, and dressings, for five or six mornings, gradually diminishing the quantity of sulphate of magnesia until I discontinue it altogether. If the ulcers do not seem to heal by the lotion, I touch them with hydrochloric acid once or twice, and this generally proves effectual. I continue the use of the lotion for a day or two afterwards, and commonly I find the disease to yield. I may be permitted to observe, that the practitioner should be very careful when dressing the ulcers, for the matter from them will affect the human skin as well as that of the brute. I will also here state that I have found the best results to follow the repeated exhibition of the carbonate of potash, given in small doses, in long protracted and stubborn cases of virulent gonorrhœa.

I beg to remain, Sirs,

Your obedient servant,

Pendleton, near Manchester. JAMES H. SHENTON.

On the Betel Nut.

In a communication received from Mr. W. Kent, he states that the betel nut, advocated by Mr. Hagger, of the Hon. East India Company's service, as a vermifuge for the horse, is not, as by some botanical writers thought, obtained from the piper-betel, but is the fruit of the areca-indica, from which two kinds of catechu are extracted,—one called *cuttacamboo* and the other *cashcutti*. The word catechu, in the Japanese language, signifies *kate*, a tree; and *chu*, juice. The natives make a preparation composed of this extract, the *leaves* of the piper-betel, which are very juicy, and a peculiar kind of lime: this mixture is generally formed into thick cakes, like nuts flattened, and is by them called "betel."

The fruit of the areca-indica is also sometimes split, and then enveloped in a leaf of the piper-betel, as we cover almonds with sugar. And this, like the other composition, is chewed or sucked; and, from the general use of the areca in one or the other of these ways, it has received the name of the betel-nut. It is considered to act as a tonic and an astringent.

Instances in Old Writers of Ossification of the Brain.

Antonio Vallisnieri has written a treatise upon this subject, which he calls "Considerazioni ed Esperienze intorno al creduto cervello di Bue impietrito, vivente ancor l'Animale, presentato dal' Signr. Verny all' Academia Real di Parigi;" 4to, Padov., 1710. In this treatise the author states that ossifications (or, as he calls them, petrifactions) of the brain were not so uncommon as they were supposed to be. He mentions an ossified brain found at Modena, and one sent to him as a present from Ferrara. A third he saw at Venice, in the possession of M. Teta. A fourth at Bologna, in the museum of Aldrovandus. At Padua, a well-attested case is described as occurring in the ox, and a preparation of which was preserved in the monastery of Justina. Of the first and fourth of these cases Vallisnieri has given representations. He minutely details the appearances presented in another case which was furnished to him by a butcher at Modena, and in which

the ossific matter was about half the size of the cerebrum, and weighed fourteen ounces. But the particular case to which the title of Vallisnieri's book alludes, according to Haller (*Bibliotheca Anatomica*, tom. i, p. 792), was not a true ossification of the cerebrum, but an exostosis. Swedenborg, also, mentions an ossified brain found in Sweden, and preserved in the collection of Bromellius, and which is treated of in the *Acta Upsaliensia*.

The Changes produced on Starch during Digestion.

By Dr. R. D. Thomson, *Glasgow.*

As starch, or substances allied to it, constitutes the basis of the food of many of the animals that come under the care of the veterinary surgeon, the following experiments will not be read without interest:—

"As it appeared to be a matter of importance in the investigation of the changes occurring in the stomach during digestion, in order to prevent complication of the phænomena, that the food should be as simple as possible, I have chosen for the experiments about to be detailed cases in which animals were fed on vegetable food alone. In general, the species of food selected was porridge, or a mixture of oatmeal and water well boiled. In such experiments as I have seen detailed, in reference to the free acid of the stomach, there appears to have been too little attention paid to the possible results which might arise from a difference in the nature of the food: thus the products of the digestion of starch we should naturally expect to be different from those of the digestion of animal fibrin or albumen, since we know that lactic acid can be produced by a modification of starch, although the same change does not attend the decomposition of the animal substances enumerated. For example, in the preparation of starch an acid liquor collects on the surface of the vessels in which the starch is digested, and in the formation of *sowans* from oat-husks and water by steeping, an acid liquor is developed—in both instances a consequence of the production of lactic acid at the expense of starch; while in the German dish, saurkraut, the same acid is

generated by an analogous action. I do not at present intend to discuss the nature of the acid which presents itself in the stomach during the digestion of animal food, but simply to detail the results of a series of experiments upon the changes produced on vegetable food and starch during digestion. I shall merely content myself with stating, that I have never found a volatile acid in the stomachs of animals which were digesting animal food alone, while in these cases I have invariably found an acid to be present which was fixed at the temperature of 212°, and even considerably higher.

"*The nature of the acid developed during the digestion of Starch.*—It does not appear an invariable rule that an acid reaction should always characterise the liquid present in the stomach during digestion, as appears from the following experiment:—On the 11th of July 1844, the different stomachs of a sheep killed twenty-four hours after partaking of grass, contained between two and three pounds of finely-divided green matter, exhibiting a pulpy consistence, but being entirely destitute of either an acid or alkaline reaction. The pulpy masses were tested in each of the stomachs with the same negative result, and they were afterwards mixed together, diluted with distilled water, and filtered, but still without producing any effect on litmus paper. Experience teaches us, that, to determine the presence of a volatile acid in the stomach, great care must be taken in reference to the mode in which the distillation is performed; since if the heat of an open fire is applied to the retort, an indication of the presence of hydrochloric acid will be found in the liquid contained in the receiver by the addition of nitrate of silver. The following experiment affords evidence in favour of this position, and it might be strengthened, if necessary, by the results obtained by other experimenters. The contents of the stomach of a dog which had been fed on porridge made of oatmeal and water, and which afforded an acid reaction with litmus paper, were mixed with distilled water, and filtered. On exposing the distilled liquor to the heat of an open fire in a retort, a fluid passed over, possessing an acid reaction, and becoming opalescent on the addition of a solution of nitrate of silver, and without this appearance in contact with nitric acid; a result plainly indicative of the presence of chlorine in some form

in the liquor of the receiver, but, as appeared by the subsequent inquiries, to be explained by the fact that muriate of ammonia must have been carried over by the vapour of water in consequence of the excess of heat.

"To determine in a satisfactory manner, therefore, the presence of a volatile acid, it is necessary to distil the fluid contents of the stomach in a water-bath. With this consideration in view, the following experiment was made:—June 1844, a pig was fed on potatoes and greens, and was killed in half an hour after the food was swallowed. The stomach was slit open, and as much of the fluid contents as possible were poured off; the solid contents were then digested in cold distilled water. Both fluids were filtered and mixed, each, previous to being united, being found to exhibit an acid reaction with litmus infusion. To ascertain whether the statement made by a French physiologist (Blondlot) is correct,—viz., that the acid of the stomach cannot be saturated with chalk,—a quantity of pure carbonate of lime was prepared by dissolving Irish limestone in hydrochloric acid, precipitating a small portion of phosphate of lime and iron which it contains with caustic ammonia, and then throwing down the lime with carbonate of ammonia, collecting the precipitate on a filter, washing it well with distilled water, and heating it to redness in a platinum crucible. An excess of this chalk was then added to the filtered fluid of the stomach, and the mixture was allowed to remain for twenty-four hours, disturbed only by frequent agitation. It was then filtered, and found to have been completely neutralized. Having often repeated this experiment on various specimens of gastric fluid with the same effect, I can only account for the different result obtained by Blondlot, by supposing that he had attempted to complete his neutralization of the fluid while it was in a heated state; and that possibly, if acetic or lactic acids were present, these acids might resist neutralization at an elevated temperature, since it has been found by manufacturers of pyroligneous acid that they cannot succeed in forming a neutral acetate of lime at a temperature approaching that of the boiling-point by chalk alone, but that they require to add milk of lime in order to overcome the acid reaction. Blondlot has deduced the inference from his experiment, that the stomach owes its acid reaction to the presence of

an acid phosphate of lime; but as the experiments now detailed do not coincide with those of the French physiologist, it is sufficiently obvious that they do not support him in his conclusions.

"Being thus foiled in corroborating the deduction of Blondlot, that phosphoric is the free acid of the stomach, it was requisite to look out for another source of the acidity of the gastric fluid: it was therefore necessary to test the muriatic or hydrochloric acid theory, as propounded by the sagacity of Dr. Prout. (See *Philosophical Magazine*, S. 2, vol. iv, pp. 3 and 120.)

"The contents of the stomach of a pig, which had been fed on porridge two hours before being killed, were mixed with cold distilled water, and filtered. Six ounces of this fluid, which was quite clear and limpid, were introduced into a retort, and distilled in a water-bath. The distillation occupied several hours; three ounces of fluid were distilled over, which possessed the peculiar smell of such fluids, and reddened infusion of litmus slightly. The three ounces of fluid remaining in the retort had a strongly acid reaction, and gave no appearance of acetic acid on the addition of chloride of iron. From twelve ounces of another portion of the same gastric fluid four ounces of fluid were distilled over by the heat of the water-bath, which presented the same characters as those of the distilled fluid just described; but in neither instance could a trace of hydrochloric acid be detected by nitrate of silver.

"With the liquor remaining in the retort, three experiments were made to determine the possible amount of free hydrochloric acid, on the supposition that the preceding experiment did not serve as evidence to prove the impossibility of its presence. Three equal portions of the fluid were measured out, to the extent of two fluid ounces in each portion.

"1. To the first portion a solution of nitrate of silver was added until a precipitate ceased to fall; pure nitric acid was then mixed with the liquid, and the temperature raised to the boiling point. The precipitate was filtered, washed, and weighed.

"2. The second portion was evaporated to dryness, and ignited; the residue was dissolved in water and precipitated by nitrate of silver, the solution being acidulated with nitric acid and brought to the boiling point.

"3. The third portion was exactly neutralized with caustic potash,

evaporated, and ignited; the residue dissolved in water, and solution precipitated by nitrate of silver.

"The results of these experiments are indicated in the follo table in grains:—

Experiments.	Weight of Chloride of Silver.	Weight of Chlorine.	Weight of Hydrochloric A
1.	7.81	1.95	2.00
2.	7.17	1.79	1.84
3.	7.97	1.99	2.04

The atomic weights here employed are Dr. Thomson's:—

Oxygen =1.
Hydrogen = .125
Chlorine =4½
Silver =13½

"The correspondence between the first and third experin shews that in the first no organic substance had been in union the silver, which was precipitated by chlorine alone, and that is no evidence from these results of free muriatic acid being pre The conclusion is the reverse, since, if any free muriatic acid been neutralized by the potash, the third experiment ought to given an inferior quantity of chloride of silver, because the ammoniac ought to have been sublimed. The potash which added, I conceive, in the third experiment, united with an or acid: the salt formed was decomposed by the incineration, the potash united to the chlorine previously in union with an nia; for that sal-ammoniac or a volatile muriate was prese proved by the second result.

"It is well known that Dr. Prout, by similar experiments, the conclusion, that free hydrochloric acid was present in stomach. That distinguished chemist, however, omitted the experiment which I have described. Indeed, he could not made it successfully under the circumstances in which he oper because the gastric juice in his experiments was not exposed heat that could coagulate and separate the albuminous ma which would then have combined with the oxide of silver, have complicated the result. In the gastric juice employed i preceding researches, however, nothing was present but sc starch or dextrin and sugar, which formed obviously no compc

with silver, insoluble in boiling nitric acid. It is possible, therefore, in the experiments of Dr. Prout, who determined the total amount of chlorine in the gastric fluid by supersaturating with potash, igniting and precipitating with nitrate of silver, that he had formed cyanide of potassium, which would precipitate cyanide of silver along with the chloride, unless the precaution were taken not merely to *add* nitric acid, but to *boil* the solution after the addition of the acid, since cyanide of silver is insoluble, or at least not wholly decomposed by cold nitric acid. I offer this explanation, originally proposed by Leuret and Lassaigne, because, from my knowledge of Dr. Prout, I am quite certain his experiments were most accurately made. Indeed, the testimony of all succeeding experimenters who have obtained the same results is sufficient to establish his accuracy without the addition of any confirmation on my part. It is even possible that, in cases where the food is different, the acid may be of the nature described by Dr. Prout.

"The experiments which have been detailed seem to demonstrate that no free hydrochloric acid existed in the stomach of the animal under the circumstances described, since no acid could be distilled over at a temperature greatly above that at which this acid boils when sufficiently concentrated, while the fluid in the retort became more intensely acid in proportion as the distillation proceeded. A portion of the liquid from the retort was evaporated to dryness, and heated to a temperature exceeding 300° without giving out acid fumes; the residue was digested in water, and still retained an acid reaction. The solution of this residue was easily saturated by carbonate of lime, and was not precipitated by chloride of calcium, indicating the absence of biphosphate of lime (contrary to the views of Blondlot) and likewise of free sulphuric acid.

"In another experiment the gastric juice was evaporated to dryness in the water-bath, and treated with alcohol and oxide of zinc with the necessary precautions: prismatic crystals were obtained corresponding with lactate of zinc, but in too minute quantity to admit of analysis, the only demonstrative argument. The preceding experiments appear to shew, however, that the free acid of the stomach, in the digestion of vegetable matter, at least, of all the known acids, alone corresponds with the lactic. To determine the nature of the volatile acid, which, however, appears to be

present always in minute quantity, a portion of gastric fluid was distilled, and the product was obtained in three distinct receivers. Their characters, as determined by infusion of litmus, were as follow:—

	Infusion of litmus.
1st product of distillation amounted to	1 oz., bright-red colour.
2d ,, ...	1½ oz., paler than preceding.
3d ,, ...	1 oz., slight red colour.

"From these observations, it would therefore appear that the greatest amount of volatile acid was carried over at first, and that as the distillation proceeded its amount in the retort gradually diminished, indicating that the acidity was not due to the decomposition of lactic acid or its eduction by the vapour, but rather to the presence of acetic acid. The quantity present was, however, trifling, since the distilled product of a large amount of gastric fluid could never be detected in a state of effervescence on the addition of carbonate of soda.

"*Dextrin and Soluble Starch found in the Stomach in the Digestion of Starch.*—I have already stated, in a previous part of this paper, that I was unable to detect any traces of starch in the serum of the blood; it was therefore necessary to return to the stomach, and to observe the chemical changes to which the starch was subjected in that viscus. When an animal is fed on porridge, if water be added to the contents of the stomach, the mixture well-stirred and then allowed to stand at rest, the supernatant liquor produces a blue colour with tincture of iodine; but if the liquid be filtered, the colour obtained by mixing the solution of iodine with the filtered liquor is red, indicative of the presence of dextrin, or one of the varieties of soluble starch. I have sometimes found, however, that starch has existed in solution in the gastric fluid even when neither a blue nor a red colour was indicated by iodine. This substance I have isolated by boiling the gastric fluid in order to coagulate the albumen, evaporating to dryness in the water-bath, and then removing the sugar and oil by means of alcohol. The substance thus obtained gave no decided indications with tincture of iodine previous to isolation when dissolved in water, and therefore corresponds with that variety of soluble starch which has frequently been described by chemical writers. It appeared a

point of some importance to ascertain whether the transition of starch into dextrin takes place at once in the stomach, or whether the change commences before the food is swallowed. I accordingly prepared a quantity of porridge by boiling it for upwards of half an hour with distilled water, and on filtering it I obtained distinct evidence of the presence of dextrin in the filtered liquid. It may perhaps, therefore, be legitimate to infer that one of the important purposes to be acquired by cooking starch is to facilitate its conversion into soluble dextrin, and that other form of soluble starch already described; and hence the importance of the boiling being continued for a considerable space of time, when some of the harder species of amylaceous food, as rice, sago, tapioca, are used as articles of diet, and especially when they are administered to the delicate stomachs of the sick.

"The soluble starch was separated in the manner already detailed, and was found to possess the following constitution when subjected to organic analysis:—

7.29	grains	gave	9.86 CO_2
7.11	,,	,,	9.54 CO_2
13.93	,,	,,	7.97 HO
7.29	,,	,,	4.05 HO
7.11	,,	,,	4.03 HO

"The result of these analyses per cent. is as follows:—

	1st.	2d.	3d.
Carbon.....		36.88	36.59
Hydrogen.....	6.31	6.17	6.29
Oxygen.....		56.95	57.12

"This composition does not agree with that of starch, except with wheat starch, in the carbon before that substance has been dried; but, according to the analyses of Prout, the hydrogen in wheat starch is greater in amount than in the present case. The carbon in the substance under consideration agrees with that of sugar of starch, but the hydrogen is much inferior; and the three experiments detailed agree so closely in reference to the hydrogen, that there can be little doubt of the accuracy of the results, more especially as the last analysis was made with oxide of copper and chlorate of potash, and the matter subjected to analysis appeared to be completely burned. The substance appears to have possessed some intermediate characters between those of sugar and starch." *Philosophical Magazine.*

On the Advantage of Reducing the Food of Animals befo giving it.

By A. Gyde.

Two horses in good health, in daily work, and as nearly possible equal in size and age, were selected for the experime They were each allowed 5 lbs. of oats (42 lbs. per bushel), an sufficiency of good hay, of which they consumed about 17 lbs. diem each horse. The only difference in the feeding consisted one horse having the oats thoroughly crushed, and the other be allowed the oats uncrushed. On the fourth day of the ab mode of feeding the solid excrements of each horse were e mined. 100 parts of the dung from the horse fed on crus oats were found to be deprived of all the nutritious matter c tained in the food, and to consist of woody fibre, mixed with animal secretions and some salts; while 100 parts of the d from the horse fed on uncrushed oats were found to contain per cent. of nutritive matter, consisting of starch and glut which had not been acted on by the stomach, mixed with the dinary constituents of the solid excrements of the animal— arising from the inability of the horse to perform perfect mast tion, and must vary with circumstances, such as age and rapi of feeding. The same horses were then fed with cut and un food, consisting of hay cut into chaff, and hay uncut. At the piration of the third day the excrements were examined, but chemical difference in their composition was detected: the f in both instances was found to be equally exhausted of its nutri matter. The shorter period occupied by the horse in filling stomach, and consequently greater amount of rest obtained, the means of mixing food and preventing waste by cutting it i chaff, require no observation from me, but will be material po in this mode of feeding.

Agricultural Gaz

A New Species of Calculus found in the Kidneys and Ureters of a Bitch.

By M. Lassaigne, *H.A.V.M.A.*

The author of this memoir published in the "Journal de Chimie Médicale for 1828, a detail of the analyses of various urinary concretions occurring in the dog. He shewed that many of these were analogous in composition to those found in the human bladder; and inferred from thence a manifest conformity as regards the different functions of man and certain of the lower animals of similar organization. The remarkable feature in the present research is, that the calculus consisted of two organic principles, one belonging exclusively to the products of the renal or urinary secretion, the other only met with heretofore as a secretion of the liver. He has, therefore, very properly called it *urino-biliary* calculus. This fact, which seems unique in the history of concretions, merits the attention both of the medical practitioner and of the physiologist.

The animal which formed the subject of this observation was a bitch of large size, a sort of bull mastiff, which died in the hospital of the school at Alfort, from dropsy.

The cadaveric inspection was made by M. Prudhomme, who discovered in the kidneys, the ureters, and the bladder, a considerable number of small calculi, very irregular in shape, of a beautiful grass-green colour. Among other changes, it was remarked that the renal substance presented a faint yellowish tint: the liver contained in its texture little whitish granulations of phosphate of lime, and small well-defined cysts, of the bigness of a pea, filled with a soft matter of a greyish green, formed of half coagulated albumen, mixed with a little of the green principle of the bile, phosphate and carbonate of lime.

A portion of these calculi was carefully dried and pulverized; the powder emitted a slight urinous smell, and had a marked greenish yellow hue. In this comminuted state even boiling alcohol did not seem to act sensibly as a solvent, although the liquid assumed a pale green colour. Sulphuric ether afforded the same result. In order to determine the nature of the substance held in

solution by these liquids, they were evaporated after being mixed. The residue after evaporation was a minute quantity of resinous like matter, of a fine green colour, insoluble in water, and which, by contact with dilute nitric acid, immediately changed colour; it became bluish, next violet, and lastly bright rose, by prolonged action at the ordinary temperature: this last colour finally changed to orange yellow. All these effects of successive colouration induced by this acid denote positively that the small quantity of green matter taken up by the boiling alcohol was the green substance of the bile, or *chole-chroïne.*

The feeble action exercised by alcohol on these calculi led to the substitution of a solution of caustic potash; this liquid, even in the cold, dissolved almost in totality the mass, and disengaged at the same time a strong odour of ammonia. The alkaline solution had a fine greenish yellow hue: saturation with acids occasioned a copious flocculent precipitate, of a greenish white, which, left to itself, was found reduced after the lapse of some hours to a greenish crystalline powder, composed of small flattened needles arranged in crosses. Microscopic examination having led to the belief that this was uric acid, the fact was verified by treating it along with nitric acid at a gentle heat, and evaporating to dryness; whereupon the characteristic carmine tint of muroxide was obtained.

The uric acid, which the potash menstruum had dissolved, was combined in these calculi with ammonia, as shewn by its disengagement above. It may be noticed that this acid, which in a state of purity is white, was here evidently combined with a certain quantity of the green colouring matter which neither *water* nor boiling *alcohol* was able to remove. After several attempts, however, it was completely separated by re-dissolving in a minimum of the potash solution, and adding to the liquor eight or nine times its volume of alcohol, at a temperature of 190° Fahr. This caused directly an abundant white flocculent precipitate of super-urate of potash, there being held in solution the green colouring matter combined with potash. By means of filtration and saturation with weak acetic acid, this matter was entirely withdrawn from the uric acid.

The above analysis, carefully repeated on a given portion of

these calculi, yielded the following results, abstractedly of the order in which the principles are combined: urio acid 62·5, green matter of the bile 12·1, ammonia 25·4, traces of phosphate of lime and carbonate of soda, in 100 parts; or, taking the order in which the principles ought to be distributed, urate of ammonia 87·9, green matter of the bile 12·1, phosphate of lime a trace, in 100 parts.

These calculi, then, are not only remarkable for having uric acid as a constituent, a thing of rare occurrence in the canine race, but for having it associated with a principle peculiar to the hepatic secretion. This mixed composition would seem to favour the idea that in certain pathological states the urinary organs and the liver are so closely dependent upon each other, that the functions of the one might sometimes supply those of the other, as indeed certain physiological and pathognomonic phenomena tend to establish.

Medical Gazette, Feb. 7, 1845.

CONTRIBUTIONS TO VETERINARY PATHOLOGY.

By Mr. J. Purves, *V.S., Hon. E. I. C. Service.*

No. II.

Case of Choaking with Gram.

The animal was admitted into the infirmary on the evening of the 7th of January, 1838, and reported to be an uncommonly greedy feeder.

Symptoms:—A peculiar rattle in the throat—coughs, and discharges saliva from the mouth and nose when he coughs; said to have done so since twelve o'clock, when he was fed. It is now 7 P.M. I passed a probang, which brought away with it, or rather it was covered with, particles of gram when withdrawn. The probang was passed with great difficulty, and required force; the horse was also very troublesome, and injured his mouth with the balling-iron. He will not touch a drop of fluid. About half an hour after leaving the stable he vomited a quantity of gram by the nostrils, throwing it two or three yards from him. The rattle and the cough left him after the probang had been passed.

8*th*.—Still refuses water. Was not allowed any food all night. Ordered to be drenched with water and oil every two hours. Appears to swallow this morning pretty well.

15*th*.—A dreadful stench has come from the mouth and nostrils for this past week, with a discharge from the off nostril. Steamed the nostrils, and ordered liquid food, and separation from other horses.

21*st*.—No smell from nostrils, nor any discharge for some days past.

3.—Case of Distention of the Stomach.

This animal was discharged from the infirmary, January the 21st, apparently well (*see* preceding case), with directions that he should be fed sparingly, and have suttoo water for some time. The symptoms now present are those of gastric irritation, accompanied with a tympanic state of the bowels. Give tinct. piperis f. ʒiij, aloës ʒiij, in haustus; throw up enemata; take blood from jugular vein ℔xvj, and scald the belly.

Feb. 10*th*.—Relief has been afforded, but the vomiting has returned as before. Give two seers of suttoo as gruel daily.

15*th*.—Purulent discharge from the off nostril—vomiting less frequent. Separate from the other horses; diet spare, but nutritious.

20*th*.—Discharge less—animal's general health now apparently good, and he does not vomit. It is evident the discharge was caused by the food having passed through the nose, irritating its lining membrane. Diet more liberal.

27*th*.—The discharge has ceased, and the animal has improved in condition, and feeds well.

4.—Case of Inflammation of the Stomach.

Sept. 7*th*, 1839, 7 A.M.—Sent from the riding-school to the infirmary.

Symptoms:—Cold profuse perspiration—vomiting by the nostrils—lying down and getting up again—conjunctiva clear, and pulse not much quickened, but full. V.S. seven quarts.; gave aloës

℥vj, tinct. piper. f. ℥iij; scalded the belly severely, and threw up clysters.—9 A.M., no better—ears and legs deadly cold—perspiration still more profuse. Repeat blood-letting to the amount of six quarts.—12 Noon: appears a little better.—4 P.M. Decidedly better. The hot water has produced a marked effect on the belly—animal standing quietly.

8th.—Eats a little grass, and the urgent symptoms are no longer present. Allowed gruel, and threw up a clyster occasionally.

9th.—Much the same as yesterday; in fact, convalescent.

16th.—The skin of belly sloughing, but otherwise the animal is apparently well.

5.—Case of Indigestion.

The farrier-major reported this horse about two o'clock. When I saw him, about half past two, he was lying down and rolling—vomiting by the nostrils and mouth—offensive eructations—points of the ears and extremities very cold—conjunctival membrane not injected—mouth natural—breathing laborious—pulse full, strong, and hard, but not much quickened—belly considerably swollen—cold sweats—no trembling of muscles—pupils not dilated, but eyes glassy in appearance.

Diagnosis.—Distention of stomach from indigestion, but am afraid that it may be a case of rupture of that viscus. Gave tinct. piperis nig. f. ℥vij, sol. aloës f. ℥iv. Bled till the pulse intermitted and the animal was ready to fall. Scalded belly and threw up clysters, which brought away a large quantity of fæcal matter. When I left him (about an hour after I saw him) I believed his stomach to be ruptured; for, after the bleeding, the ears became deadly cold and the conjunctival membrane pale; but in the evening he was getting better, and the next morning was apparently well. To be fed sparing, and suttoo water given.

6.—Case of Indigestion.

Admitted 4th March, 1838, at 11 A.M.

Symptoms.—Breathing hurried and pulse slightly quickened—belly much swollen. Gave aloës ℥iv, tinct. piperis f. ℥vj; at 1 P.M., spts. etheris nitric ℥j.—3 P.M. no better. Repeat draught,

ordered in the morning.—4 P.M. threw up aloës ʒj in a clyster: after this he voided an immense quantity of wind.—6 P.M. scald belly.—10 P.M. V.S. five quarts. Despite all our efforts, the animal died during the night.

Post-mortem appearances.—Stomach highly inflamed and distended with gram—small intestines inflamed—colon filled with dry undigested food, inflamed, and very much discoloured. I attribute this horse's death to want of exercise and bad grass. A number of horses (nine) were attacked at the same time, and with exactly the same symptoms; but all these got well.

THE VETERINARY MEDICAL ASSOCIATION.

JANUARY 7, 1845.

THE Members resumed their Meetings this evening, pursuant to adjournment over the Christmas holidays.

The PRESIDENT in the Chair.

Mr. Jeffraeson presented to the Library his work on "Ophthalmia," and on the table were laid the Continental Journals for the months of November and December 1844.

CASE OF ENCYSTED PILARY TUMOUR.

By Mr. R. READ, *M.R.C.V.S.*

My dear Sirs, *Crediton, December* 28, 1844.

I HAVE sent you an *encysted pilary tumour*, and will endeavour to give you my opinion of the formation of these growths, more particularly since cases of the kind must be rare at the College.

This tumour was taken out, about a week since, from the shoulder of a cow, embedded in the centre of the muscle of the shoulder, and leaving, when removed, a corresponding concavity. It had no connexion with the external skin. I have not disturbed its contents, as I have had two or three opportunities of examining others so as to ascertain their nature. The hair in these cysts is white, and there is the same detachment of the hair annually as

takes place from the skin externally. Mixed with the hair in the cyst is also the same kind of sebaceous matter as externally secreted—the dandriff, or exfoliation of the epithelium of the skin. You will also have the successive moultings or periodically detached portions; and the hair is so very singularly conglobated that, if you carefully untwist the mass, and then take the aggregate number of the pilary exfoliations and divide by the number 2, you will have nearly the number of years the cyst has been forming. I have seen them from the size of a walnut to the present one. In the very small ones it is easy to calculate their age, but in this one you will have some trouble.

Reasoning from analogy, it is probable that this tumour would have attained a very considerable size had not the animal been slaughtered; since every year would have increased its volume, as the hair could not have been expelled or absorbed; yet there is no doubt but that some of the liquids of the cyst might have been taken up by the absorbents. It is singular, also, that the hair in those cysts conglobates, similar to those hair-balls or Ægagropilies which are found in the stomachs of ruminants.

I trust this subject will prove of sufficient interest to appear in The Veterinary Record.

I am, your's truly.

The President.—All the tumours of this nature which I have examined, I have found to exist either in the cellular interstices of the muscles, or in the subcutaneous cellular membrane; and I have met with many of them not only in the ox, but also in the dog, horse, and other animals. The manner of their formation has not, I think, up to the present time, been satisfactorily explained. Some have imagined the hair to be first forced among the softer structures by external violence, and afterwards to be there confined by the healing of the orifice through which they entered. Such an hypothesis, however, shews but little ingenuity of thought, and it is open to so many and such obvious objections, that it cannot even claim a moment's consideration. Mr. Read's theory I am inclined to view as correct; and that I should do so is not, perhaps, surprising, when our Secretary can witness for me that I have for years entertained similar opinions concerning the de-

velopment of these singular growths. In this case, as in the one I noticed at a previous meeting, the sac has taken on an integumental character, and from its inner surface the hair is seen to be growing as from the true skin. From this, as from other parts, the hair would, we have every reason to conclude, be subject to the shedding process; and thus its accumulation in the sac is rendered easy of explanation, because from its nature hair is incapable of being absorbed, and very resistant of ordinary decomposing influences. Mr. Read's opinions in all respects deserve attention; but he says that the hair of pilary tumours is always white—a remark which does not exactly accord with my observations, I having found it rather pale-coloured than altogether devoid of tint, though in every case thin and weak. Mr. Read also ingeniously supposes that the shedding within the sac regularly takes place with the moulting of the external coat, and thus he states with confidence that the length of time which one of these pilary tumours may have existed can be easily ascertained by observing the different layers of deposit. I, however, cannot in the present instance perceive the arrangement to which he refers; nor have I ever remarked it in other tumours of this character which I have examined. I therefore should require further proof before I fully acquiesced in this view. The coat of an animal is at particular seasons shed and reproduced, and while it is obvious that the hair is also shed from the inner surface of these sacs, yet I think we are not warranted in assuming that this process takes place in the same order as from the true skin; for although these abnormal structures simulate integument, yet they essentially differ from it in being removed from all the influences and exciting agents to which the outer covering of the body is exposed. Nevertheless such speculations deserve attention, and by the investigation which they challenge are of benefit to science.

[We believe that Mr. Read is the first English veterinarian who has placed on record an instance of these singular growths, and the continental journals are almost silent respecting them. Conversing with Dr. Goodfellow about their formation, he kindly offered to institute an examination of the one we were put in possession of, the result of which is as follows:—]

London Fever Hospital, 10th May, 1845.

My dear Sir,—I have carefully examined the hairs contained in the tumour, a part of which you were so good as to send me, as well as those that were still attached to the wall of the cyst. I find them to possess the usual anatomical constituents of the normal hair belonging to one of the order of animals from which the tumour was removed.

The attached extremity is of a bulbous form, and is lodged in a membranous capsule or follicle. From its attachment to the cyst it gradually diminishes in size, and terminates at its free extremity in a mere point. Along the centre of the hair is a tube which extends from near the bulb to within a short distance of the free extremity, its diameter being greatest near the bulb, and gradually becoming less in its course towards the apex. The wall of the tube is structureless, except at a short distance from the bulbous enlargement, where may be observed a few longitudinal and very delicate creasings, and it is covered by irregular quadrilateral scales, which encircle the hair in a series of rows, extending from the root to the apex; the scales being largest near the former, and diminishing in a ratio with that of the other constituents of the hair as they proceed towards the latter.

With respect to the Structure of the Cyst itself.—On its free or internal surface there is a layer of epithelium, the flattened cells of which have a polygonal form. This layer of epithelium rests upon a transparent homogeneous membrane, which appears analogous to, and closely resembles the basement layer of serous and mucous membranes. Attached to the layer immediately external to it, the principal thickness of the wall of the cyst chiefly, if not entirely, consists of a series of layers of the white fibrous element; for on submitting a thin layer of it to the influence of acetic acid, the beautiful wavy and longitudinal fibrous appearance was entirely destroyed. No other structure could be detected. The tissue by which this cyst was attached to the surrounding parts, I found to possess all the usual characters of true filamentous tissue.

The contents of the tumour appear to be of a fatty nature. When submitted to the microscope, a crystalline mass may be observed, resembling the flakes of stearine thrown down from a

solution of this substance in boiling alcohol on cooling, except that it has a yellowish colour. Perhaps a chemical analysis would lead to some interesting result as to its composition.

Regretting that time will not allow me to enter more fully into this subject, I remain, my dear Sir,

Your's very truly,

W. J. T. Morton, Esq. S. J. Goodfellow.

A Case of Obstruction at the Base of the Cæcum caused by a large Carcinomatous Growth.

The President.—Most of the members present are aware that the morbid parts before me were taken from a horse which was destroyed yesterday in this infirmary. The case is one possessing much interest, and well deserving your attention. The horse was thirty years of age. He had been the property of his last owner fourteen years, during the whole of which period he had frequently come under my observation, as he was regularly shod at the College, and I knew him to be a remarkably healthy animal up to within about six months, when he was observed to fall off in condition, though his appetite still continued to be good. He was sent to the College to be treated, simply on account of loss of condition. As no symptoms of acute disease could be detected, it was suspected that some irregularity of the molar teeth might interfere with mastication. The most careful examination of the mouth, however, developed nothing confirmatory of this view. The loss of condition was therefore attributed to a want of tone in the organs of digestion, consequent upon extreme old age. His corn was ordered to be bruised, and the food otherwise prepared, and such medical treatment was adopted as seemed likely to invigorate the system, and, when the animal left the infirmary, he was in some degree improved. From that time up to a day or two before he was destroyed the horse continued at work, and it was remarked that only within the last three or four months had the signs of general decay become more conspicuous. The animal then rapidly fell off in condition, presenting, nevertheless, no symptoms of acute

suffering, nor loss of appetite, save only, as the coachman states, that three or four days before he was brought to the College for the last time, he observed that during the night the animal was restless, pawed, and exhibited some general symptoms of abdominal pain, which, however, quickly passed off.

On his admission to the infirmary, the pulse was by no means accelerated, nor deficient in tone; yet I could not but be struck by the emaciated aspect he presented as contrasted with the condition in which I had so long known him. Taking, therefore, into consideration the extreme age of the animal, conjoined with the rapid loss of flesh he had of late exhibited, I felt convinced that there was no hope of restoration by any mode of treatment which could be adopted, and I advised the owner to have him destroyed. This advice was followed, and those of you who were present at the post-mortem examination saw that the viscera generally exhibited no signs of inflammatory action, but presented rather a blanched appearance than otherwise; and the lungs, as is usual in old animals, were atrophied. Had I been contented with a casual inspection of the parts, nothing was sufficiently marked to have attracted my attention; but feeling interested in the case, a more minute investigation enabled me to discern some slight indications of subacute inflammation, with fluid effused beneath the peritoneum upon the surface of the cœcum, and, on opening this intestine, its coats were found to be much thickened, and the body of the gut filled with thick, dark, grumous matter, having a fetid odour. This, certainly, cannot have been derived from the ingesta, for neither the husk of the oat nor the undigested particles of hay, which characterize the fæces of the horse, can be detected amongst it. Its presence, therefore, must be attributed to a morbid secretion taking place from the inner surface of the cœcum itself, which by long retention had thus become fetid and partially inspissated. Seeking for the cause which had imprisoned and induced this extraordinary change in the natural secretion of the intestine, I traced the gut throughout its course, and at its base I perceived a large carcinomatous growth, which had produced such constriction of the tube, that it was only with difficulty a single finger could be forced through what was once a channel sufficiently capacious to have received the head of an ordinary sized man. Posterior

to this growth is the cœcum caput coli, from which the colon originates, and in which the ileum terminates; and on the mucous lining membrane of these parts we observe no sign of inflammation: indeed, the interior of this isolated portion of the cœcum exhibits no symptom whatever of disease.

Now as the cul de sac we term the cœcum caput coli is intermediate between the ileum and the colon, and as the communication with the body of the cœcum was by this morbid growth cut off, the ingesta must have passed, not through the body of the cœcum, but from the ileum almost directly into the colon. The cœcum had thus been thrown entirely out of use, and whatever its function may be, it had not been performed for some time; since the nature of the disease convinces me it must have existed for a longer period even than three months. How clearly, then, does this case shew the extent to which chronic disease may go without the manifestation of any acute symptoms! In the very neighbourhood of a malignant tumour of such magnitude as to cause all but strangulation of one of the largest intestines, the parts appear not in the least affected. The ingesta taken from the cœcum caput coli seems of its natural character. I inquired of the coachman if the dung of the animal had ever been discoloured, or if any of this grumous matter had been voided with the fæces, and his reply was, that nothing of the kind had been observed by him. It is impossible to ascertain for how long a time this altered secretion has been accumulating; but the fact of its having been pent up in this large and peculiarly constructed part of the alimentary canal, and necessarily, as it were, cut off from the digestive system, awakens reflections on the use of this intestine.

The size, the position, and the peculiarity of the connexions of the cœcum in the horse throw a mystery around its function. In some animals this gut is small—in many of the carnivora so small as to become a mere pouch-like appendix to the common canal. Some physiologists have asserted that it was formed to receive the fluids drank by the animal, and in accordance with this opinion it has been very generally called the "water-gut." Looking, however, from opinions to facts, we see that the sheep and the ox both ruminate; but the first animal, which drinks less than the last named, has the largest cœcum; and the hare, that

seldom partakes of fluids, has the same intestine of extraordinary length and magnitude; while the dog, whose thirst often induces him to drink largely, has an extremely small cœcum.

In the case now under consideration, nothing but the semifluid matter beforementioned was found in this gut; yet the animal, although deprived by disease of the use of this portion of the intestines, fed and drank well, and shewed no signs whatever of approaching death. I therefore infer from this, that the water he drank did not pass into the cœcum, and I certainly think that the opinion which holds it to be the especial receptacle of fluids stands in need of proof for substantiation. Liquids, in common with other solid and more nutrient matters, doubtless in the normal state of parts pass through this intestine, but this portion of the canal I cannot consider as alone formed for the reception and retention of fluids. The cœcum exists as a cavity or pouch developed at the termination of the small intestines, through which the ingesta is known to pass with great rapidity, and at the commencement of the large ones, where it is retained for some time, thus dividing the alimentary canal into two portions, each having a separate and distinct action on the food taken in.

I now proceed to notice another peculiarity which the case presents, and which is worthy of even more than a passing remark. The horse was a confirmed crib-biter. I have opened the bodies of hundreds of horses which during life manifested this habit, but I never met with a case that did not shew some lesion in some part of the alimentary canal, and this has generally been in the stomach. My respected colleague, Mr. Sewell is, I believe, of opinion that crib-biting always arises from ulceration of the stomach. I am rather inclined to regard it as arising from functional derangement of the digestive organs in the first instance, proceeding to structural disease as the habit becomes more confirmed. In this case the stomach presented an unhealthy appearance, and its parietes were irregularly developed, being more dense in some parts than in others. The œsophagus, likewise, was dilated in places, and where dilated much attenuated in its coats. This atrophy of the œsophagus is the cause which renders crib-biters so liable to be choaked, from the food becoming lodged there. And since crib-biting is thus found to be associated with disease, and, moreover, exposes the animal addicted to it to danger, I cannot view it otherwise than unsoundness.

On the Use of the Solution of Indian Rubber for Open Joints.

By Mr. H. King.

It is unnecessary I should enlarge upon the difficulty experienced in treating open joints, this arising from the almost impossibility of applying bandages to the injured parts so as to confine the suitable remedies. Any agent, therefore, that will aid our endeavours in this direction must be of value; and my brother, it is well known to most present, has used a solution of Indian rubber in these cases with marked success. He has, also, derived considerable benefit from its application to parts where pressure was desirable, and where it was difficult to retain a bandage, or to give pressure by any of the ordinary means. A case that has lately occurred is, I think, worthy of being brought before the notice of this Association.

A grey mare was purchased by a gentleman of Edinburgh for a large sum, and, with other horses, was put into the train on her journey from Melton Mowbray to Newcastle. When she arrived at the latter place, and was being taken from the box, the animal's foot slipped through the boards, and a wound upon the hock, opposite to the cuboid bone, was the consequence. My brother's attendance was soon after requested. He found synovia escaping from the joint; and perceiving it was useless to attempt bandaging the part in the ordinary way, he at once had recourse to the solution of Indian rubber, which he applied in the manner he has described in his recent communication to The Veterinary Record; with this he conjoined the usual treatment, giving the animal physic and using local counter-irritation. The Indian rubber, as is invariably the case with this agent, adhered firmly; and for the first six days the mare appeared to be going on remarkably well. However, on visiting her on the seventh day, the patient for the first time exhibited indications of pain, although the hock was not much swollen. The means adopted gave no relief, and the animal continued to get worse, until at length she could not put her foot to the ground. The owner, therefore, determined to sell her for whatever price she in her deplorable condition would fetch. My brother, unwilling the case should pass into other hands, and

anxious to test the full effect of the agent he had employed, became the purchaser; and the mare was accordingly sent to his stables.

As counter-irritation in all its forms had been previously tried, suspicions were now entertained that a foreign agent might be lodged within the wound; for instance, a splinter might have entered at the time of the accident. Impressed with this idea, the wound was again opened, but no foreign body could be discovered: all the diseased portions were carefully dissected out, the edges of the wound brought together, and, over all, the Indian rubber solution was once more applied. Five or six days after the operation the mare for the first time during four or five weeks, put her foot to the ground, and from that period she continued, day by day, to improve, and is now at grass perfectly sound. All further comment on the case is superfluous.

JANUARY 16, 1845.

The PRESIDENT in the Chair.

Messrs. Dunsford, Hooper, and Wright, students, were elected Members.

On the table several morbid specimens were laid.

CASE OF CARCINOMATOUS TUMOURS WITHIN THE NASAL CAVITIES OF A MARE.

By Mr. F. M. CASE, *M.R.C.V.S.*

Dear Sir, *Huntingdon, January* 5, 1845.

I HAVE forwarded the head of a mare, respecting which I was requested to give my opinion a few days since. A discharge of blood had taken place from her nostrils for some time past, and on examination I perceived them to be filled with malignant tumours, but whether of the nature of polypi I am not prepared to say: I rather think they are not. But, whatever be their nature, they interrupted, and that very considerably, the passage of the air in and out of the lungs; indeed, so much so, that the animal, when

feeding, would frequently turn round and put her head out of the stable door for several minutes, so as to respire more freely. As she was rapidly losing flesh, I at once recommended the owner to have her destroyed, which was done yesterday.

Mr. M. informs me, that he bought the animal when a foal, and she did well till within these last eight or nine months, when her breathing appeared to be slightly affected; but as she was apparently in good health, and kept up her condition, being not fat, but in good working order, no notice was taken of this; although occasionally, when she was drawing a heavy load, there would be a small quantity of blood trickle from the nostrils, but not sufficient to awaken any apprehensions. She was about nine years old, and had a foal last summer, when she was turned to grass for several months; and it was when she came up in the autumn that the diseased state of the nostrils was discovered. The foal was immediately taken away, and she was put into a place by herself. She was now fast losing flesh, and the breathing had become very considerably impeded. It was in consequence of this sudden change that I was requested to see her: the result I have told you.

Mr. M. can form no idea as to the cause of the disease, she never having received any local injury that he is aware of. The above is all the information I have been able to obtain respecting the case, and I regret it is so meagre.

Will you give me your opinion as to whether there is any probability of the foal becoming affected?

I am, dear Sir,

To Professor Spooner. Your's truly.

The President remarked, that he had seen some few cases of peduncular polypi in the nostrils of the horse, and he had recently laid before the Association some interesting specimens of malignant tumours occupying the frontal and maxillary sinuses; but the morbid growths now upon the table were altogether different from these, both with regard to their nature and situation, and such as he had never before witnessed. There were several tumours, evidently of a carcinomatous nature, occupying nearly the whole of the inferior area of both nostrils, attached to the septum and alæ nasi and inferior turbinated bones, some of which were scirrhous,

while others presented the ulcerous stage of carcinoma. The surrounding veins were very turgescent, and in some parts the ravages of the ulcerative process had extended even through their coats, thereby occasioning the hæmorrhage, described by Mr. Case, and giving rise to the large clots of sanguineous coaguli which were still adherent to the ragged edges of the ulcers. The Schneiderian membrane presented an inflammatory blush for a short distance upwards; but this gradually disappeared, leaving the upper chambers of the nose, together with the frontal sinuses, in a perfectly healthy state. The inter-maxillary lymphatic glands were somewhat enlarged, and evidenced a slightly increased vascularity; their cellular connexions, however, were normal, being quite free, and loose in their attachments to the surrounding tissues. It appeared from Mr. Case's statement, that the mare had, for several months past, shewn slight symptoms of impeded respiration, with occasional hæmorrhage from the nostrils; but that, until recently, she had not fallen off in condition, and her general health was unimpaired, when, somewhat suddenly, the symptoms became more aggravated, and the animal rapidly fell into a state of emaciation. This change was evidently occasioned by the disease assuming a more malignant type, the more frequent recurrence of hæmorrhage, and the constant state of irritation kept up by the increased impediment to the respiratory function. Remedial measures had been too long deferred; and he had no hesitation in stating that, when Mr. Case was first professionally consulted, the disease had extended beyond all hope of cure; he, therefore, commended him for his decision in at once recommending his employer to have the mare destroyed. He, however, had no doubt that this formidable malady had its origin in a simple local injury; and, in all probability, if the timely aid of the veterinary surgeon had been called in, it would have readily yielded to a judicious mode of treatment. This was a case which might have been mistaken for glanders, as, indeed, many *local* diseases attended with a discharge from the nostrils had been; but an inquiry into its history, and a careful observance of the symptoms, at once prove it to have been altogether distinct from that contagious disorder.

In answer to Mr. Case's inquiry, "Whether there is any probability of the foal becoming affected," he should say—No.

The Treasurer said he perfectly agreed with the President as to the nature of the disease; and he should not have risen to make any observation on the case had he not been struck by the remark, that it might have been mistaken for one of glanders. He had once been consulted upon a case thought to be glanders, and where hæmorrhage from the nostrils was a prominent symptom. In that instance there was observable a bulging at the inferior part of the frontal bones, more especially on the right side; and the application of pressure produced pain accompanied with a slight discharge of blood from the nostrils. He had no difficulty in deciding that the disease was not of the nature supposed, and gave it as his opinion that the bony structures of the nasal cavities were affected, probably the ethmoidal cells and superior turbinated bones. The post-mortem examination corroborated this opinion: the ethmoidal cells were found to be greatly increased in size, the membrane thickened and abnormally vascular, associated with accumulations of blood in a semi-coagulated state; while the turbinated bones were partially absorbed. Now, it is not unusual for glanders, when the ulcerative process goes on rapidly, to be accompanied with a discharge of blood from the nostrils; hence the cause of the mistake made in this instance; but which nevertheless, possesses some interest, as shewing that one of the symptoms of that most dreaded disease may spring from very different causes. When polypi are present, they seldom are found to occupy both nasal chambers, and the occasional bleeding will therefore be found to come only from that cavity which is affected. The tumours in the case before us are of a fleshy structure, and probably owe their origin to injury: they appear to have been developed internally to the Schneiderian membrane, which ultimately by their pressure becoming absorbed, hæmorrhage, from the denuded and vascular surface thus exposed, was the natural result.

A Case of Fractured Pelvis.

The President.—I have before me the os innominatum and femur of a mare which was yesterday destroyed in this infirmary. The history of the case is briefly this:—Three months ago, while in the shafts of an ice-cart, the mare slipped on the wood pavement, but regained her footing without falling, and immediately became

so lame that she was unable to walk home : she was, consequently, taken to the nearest stable, and a farrier was called in to treat her, who pronounced the hock to be the seat of injury, and he blistered the whole of the lower part of the limb, promising very confidently that he would "soon make all right again." The mare, however, after some few weeks had elapsed, not getting much better, the owner became dissatisfied with his treatment, and, being a subscriber to the College, he sent the animal here for our inspection and opinion. On examining the case, I was struck by the difference of bulk exhibited in the two haunches. After long continued lameness, however, no matter where the seat, this difference is often observable, resulting from the muscles being thrown out of use and becoming atrophied; but in this case the wasting was of greater extent than the duration of the lameness, since the accident, accounted for. The ileum was also considerably depressed, and opposite the acetabulum joint there was a large cicatrix of long standing. I was further enabled by manipulation to discover the existence of a fracture of the os innominatum ; but I gave it as my decided opinion, that the fracture which had recently been produced was not the primary or only injury to which the parts had been subjected. I concluded that the bone had been previously broken and subsequently reunited ; and that the mare, when she slipped on the wood pavement, had again torn the callus asunder by the violence of muscular action. The vastus internus muscle was also in an atrophied state, and the patella was partially luxated upwards and outwards when the limb was put in action, thus hindering its extension under the body. The gentleman to whom the animal belonged informed me that when he bought the mare he observed no difference in her haunches, nor did he detect any impediment in her gait ; but that amounts to nothing, as there are hundreds of horses now working and considered sound which have had their ileums fractured. Considering the advanced age and little value of the mare, it appeared to me that the case was not one which warranted treatment, and by my advice the animal was destroyed.

The post-mortem examination proves the judgment I formed was correct. The neck of the ileum is fractured, and around the seat of the fracture there is an accumulation of a semi-cartilaginous substance ; but the surfaces of the bone, though in apposition, ap-

pear to have had no tendency to unite by the ossific process; on the contrary, they have become smooth, and taken on the character somewhat of a false joint. The muscles surrounding the acetabulum are lacerated and atrophied, while within the joint there exists but little synovia, and the head of the femur is partially denuded of cartilage. The patella can be easily passed over the outer condyle of the femur, and the synovia is here rather superabundant than otherwise. The vastus internus muscle having suffered injury explains the luxation of the patella during life, as the vastus externus muscle was acting unopposed.

This case is interesting, as it proves that after fracture of a large and important bone a horse may be a serviceable animal; but it also shews that the deformity which may remain is liable to predispose to a second fracture, even after perfect union has taken place.

Mr. Gregory remarked, that he had seen several cases of fracture of the ileum which had done well. Only last summer, a coach-horse fell and sustained a fracture of this kind. Little other treatment than that required to allay the inflammatory symptoms was adopted, and the animal was now at work.

Mr. Robb related the case of a horse sold by him, which he afterwards saw, and perceived to be "down in the hip." The owner assured him the animal had not received any injury, nor had ever betrayed lameness during the change of structure, which had been very gradual.

Resumed Debate on Influenza in Horses.

[Extract from a Letter from Mr. Fishwick, V.S.]

Oldham, January 10*th*, 1845.

* * * * * * * * *

Influenza has been very prevalent in this locality. When called in, I always administer a laxative, whether the bowels be relaxed or otherwise: this is followed by a febrifuge draught, containing the spt. etheris nitrici, which, if need be, is repeated every night and morning during the febrile stage. In a few instances, when I suspected there was some derangement of the

liver, I have given small doses of calomel, and with great benefit. As it respects the giving of aloes, I have had above a hundred cases, and in every one I have not given less than from ʒij to ʒiij of this drug. I have had them under treatment in every stage, and I depend principally upon getting the bowels gently relaxed by this agent. I incline to the opinion, that, if I had not given aloes, I should not have been so fortunate as I have, for I have lost only three cases. I place great confidence also in passing a long seton in the course of the trachea; and where I have not been called in until late, when the disease has put on the appearance of congestion, I have at once blistered the throat and larynx, and well stimulated the extremities.

* * * * * * *

Mr. Ernes.—Oftentimes it is difficult to distinguish between attacks of influenza and pneumonia, or to determine whether the lungs are involved, and a complication of disease exists. I have seen instances of influenza which have exhibited many of the symptoms of pneumonia, and have also treated cases of influenza that have terminated in pneumonia. I am still of opinion that aloes in this disease is a dangerous drug, and that rowels when introduced are frequently attended with sloughing. While stating this, it must not be forgotten by you, that my remarks more especially apply to the heavier breed of horses. The cart-horse is an animal which, having no representative among the wild beasts of his kind, we may regard as the product of artificial treatment. The natural light and active body of the original horse has in him been by artificial means rendered ponderous and heavy. There is in his frame an excess of cellular tissue—a tendency to fatten, and a general want of action. Among my patients, there are some whose weight cannot be estimated at less than a ton. I attach importance to weight, because animals of such enormous and unnatural size cannot endure depletion; the system being, as it were, burdened with the sustenance of an overgrown body. The quantity of food such horses necessarily consume, added to the condition in which they are kept, render them sensitive to causes that might but little affect an animal of a lighter description. Such horses exist in a wholly artificial state, and their condition is only kept up by constant stimulants and exercise. Many are out eighteen hours in the day, and some never lie down when in the

stable. Often such horses are destroyed by the slightest illness: not because of the disease or the importance of the parts affected, but because the powers of life cannot be maintained when stimulants and exercise are upon compulsion withheld, their systems being then unable to endure the smallest constitutional irritation. I feel confident that no purgative is required in such cases, and certainly no medicine of a drastic nature can with safety be exhibited during this disease, because violent and obstinate diarrhœa is frequently one of its symptoms. Again, there is in influenza great susceptibility on the part of the mucous membranes to take on morbid action; yet I would not, as some have done, assert the disease is confined to these structures. No. The cellular tissue of the body is likewise involved, and the general system so much implicated, that it is most difficult to say what particular part is more especially the seat of the malady. Pain in the hind extremities has been always present; frequently the attack is ushered in by shivering; indeed, I think closer observation would prove this to be invariably the primary symptom. There is also one symptom present which I have not observed during any other affection, namely, that after a few days only the hairs of the mane and tail loosen, and may be plucked out with the slightest force, being a proof of the debilitating effect of this disease. I have bled in some few cases; but the result was not such as to warrant me in the continuance of the practice, and I found that the period of convalescence was by depletion considerably protracted. In such cases as by the symptoms evinced there was danger to be apprehended from the lungs becoming affected, I have had recourse to revulsives, employing cantharides for that purpose. But I have frequently found the action of those agents, during influenza, to be greater than I desired, and the consequent blemish has caused me to regret their employment. Mustard, also, is too violent; for effusion and anasarca will sometimes ensue upon its use. I wish to be understood as not advocating any specific mode of treatment. I do not believe that any arbitrary plan that will meet every case can be laid down. Judgment is required in this disorder, which in different breeds of horses assumes different characters, and demands different kinds of treatment. Though there may be some agents that are dangerous, yet experience alone can determine what should be given, and

when it should be administered. On this account it is that the early attendance of the veterinary surgeon is important, and the owner who delays to seek his aid at the first appearance of the attack may with greater reason complain of his own delay than of the practitioner's want of skill should the patient be lost.

Mr. Daws.—I have observed that, during the recent prevalence of influenza, there has been fewer cases of pneumonia than usually occur at this period. I am inclined to trace the cause of the disease to some peculiar condition of the atmosphere; and, with regard to the treatment I have pursued, I will suppose a case:—I am sent for to look at a horse which the owner perceives to be ill. When I arrive I find the pulse is 90, the eyes are tumefied, and the tongue is furred. I inquire if any thing has been given to the animal, and am told the horse has had no medicine. I immediately order the patient to be removed to a loose box. I see that the legs are well bandaged and the body clothed, attending most especially to the comforts of the animal. I then administer an enema, and give a little fever medicine. The next day, should the tumefaction of the eyes have increased, I extract blood from the jugular vein, and as the febrile excitement lessens and the animal improves I throw in vegetable tonics.

Now another horse in the same stable shall be attacked. The pulse in this case may be but 46; and here I give an aperient. The action that may follow its exhibition I do not fear, as I find the disease is very manageable. I have had some hundreds of cases, and never lost one. Where I require a counter-irritant, I employ an acetous solution of capsicine, which, if not used carefully, will blister the hand that applies it.

Mr. White.—Referring to the origin of influenza, I cannot but reflect on the kind of weather we had during the last summer. In the spring which preceded it, in April last, instead of grass on the land, we saw the meadows barren, or where there was any vegetation, to speak generally it was unhealthy. The oat and barley crop was short. Seeds failed to germinate, and the hay was so deficient as often not to repay the labour expended in collecting it. Any one last summer might have foreseen the prevalence of disease of some kind, since the prospect for the stock during the winter was most gloomy. Poor food, and that deficient in quantity, joined to cold and changeable weather, may, in my opinion, be regarded as

the natural cause of this or any other disease which may, under certain conditional circumstances, break out.

Mr. Hallen.—Such causes could not affect the horses of my regiment, which were always well supplied; yet, notwithstanding, they were attacked with influenza. It is true, my practice has been limited to the horses of my own regiment, and, when the disease appeared amongst them, I looked carefully to the animals that were not affected. Equally with the cure of the diseased, the preservation of the healthy was an object of solicitude with me, and much may be done in that respect by regulating the food, and otherwise attending to the peculiarity of constitution of the animal. Of those which were suffering from the disorder, many required but little treatment. It was in the worst cases only that I passed setons, especially if the trachea or larynx shewed any signs of irritation—using not one long seton, but several short ones, so as to reach from between the jaw to the chest, and in no one instance have I observed any disposition to slough ensue upon their insertion. When making this assertion, however, I must add, that my practice is confined to the lighter breed of horses, and therefore can in no manner be opposed to Mr. Ernes' experience among the heavier kind of horse. The medicines I administered were of little moment. A mild diuretic conjoined to dieting and nursing were my curative measures. Yet some of the cases I thus treated were of a very severe nature, and a large coach-proprietor who saw them could in many of them perceive no hope of recovery, declaring the animals must die. Nevertheless, continuing the plan I have laid down, not a single horse was lost. The person to whom I have alluded, seeing the success of my practice, said, he would adopt it should influenza visit his stables. It was not long before the disease appeared among his horses; but, alarmed by the symptoms, and beset by entreaties and prophecies, his resolution failed: he permitted what are called "active measures" to be employed, and the death of many of his horses was the consequence.

Mr. Hall.—I am of opinion that this disease, when it attacks the lighter description of horse, puts on so different a character to what it does in the heavier kind of animal, that he may almost be said to be suffering under another disorder. My practice has been chiefly among the heavier breed. I have never given a

drachm of aloes, yet out of two hundred cases seven have terminated in death. I have known horses to be attacked by influenza three times, and have had horses die in the same stable in which my own were, yet these were not affected. I have employed mustard as my counter-irritant, taking care to rub it well in the contrary way of the hair. Influenza, in my opinion, has generally a tendency to involve the lungs.

Mr. Shirley.—A practitioner in attendance upon the horses of a large brewery in London told me he had employed aloes, and lost but very few cases; but, at the same time, he added, that he varied his treatment in different animals, depending on circumstances.

Mr. Cartwright.—I have had a few cases of influenza under my care: to them I gave aloes, and they all did well.

Mr. Dunsford.—I have been called upon to treat both the light and heavy kind of horse. To one of the lighter description I have given aloes ʒij, and, though the bowels responded quickly, yet by limiting the water I found the violence of the action could be subdued. But when administering the same agent to cart-horses, it has certainly been followed by more action than I could have desired; yet, by the timely use of flour-gruel and dry food, any unpleasant consequences have been prevented. I have not ventured to exhibit any medicine of a cathartic nature where the pulse was weak, and where much cellular effusion was present; but in such cases I have given stimulants combined with tonics. I have seen only one post-mortem examination, and in that there was no appearance so marked as to attract my attention or characterize the disease.

JANUARY 21, 1845.

The TREASURER in the Chair.

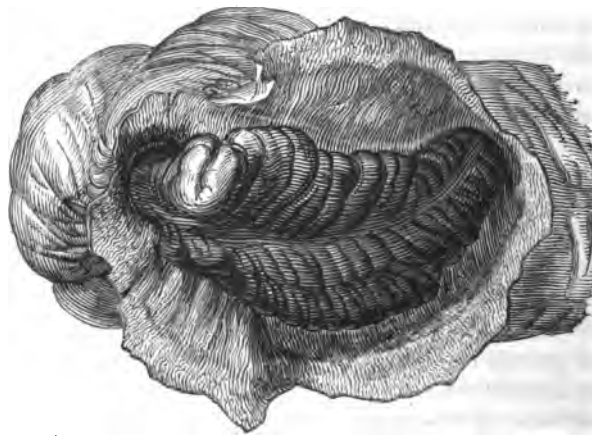
Mr. Hardman presented to the Library Dr. Franz's work on the Eye.

Messrs. R. Keene and R. Mead, students, were elected Members.

Case of Introsuscepted Cœcum in the Horse.

By Mr. W. Robinson, *M.R.C.V.S.*

Tamworth, Jan. 17th, 1845.



My dear Sir,—I have sent by the train this evening a basket containing the most extraordinary morbid specimen of the large intestines I have ever met with. It appears to consist of an inverted cœcum, which by some means has become lodged within the colon. Its apex seems to have been lifted up by the power of inverted action, and passed through the common opening at its other extremity into the colon, as you will find it. The horse died this morning, shewing spasms of the bowels.

I only saw him a few hours before death. The post-mortem examination presented sufficient inflammatory mischief in the ileum and colon fully to account for his death: but for a time I could not find the cœcum, and was about to declare its absence, or the want of it, when I felt a substance in the colon, which upon opening proved to be the missing intestine. I will give you (as soon as I obtain it) a full history of this case; but trust this hurried notice will be sufficient to call the attention of the members of the Association to its singular character.

I am, in haste,

Your's very truly.

Tamworth, June 12th, 1845.

Dear Sir,—I will now endeavour to give you as much of the history of the case (of introsusception of the cœcum into the colon) as I have been able to collect.

The horse which afforded the morbid specimen above alluded to, and which was transmitted to you some time back, was the property of L. Haughan, Esq., a gentleman at that time on a visit to Captain Desooun, at Drakelow-park. I have been informed that the horse had three drachms of Barb. aloes given to him on Tuesday afternoon, 14th of January; the weather being at that time frosty, with every appearance that Wednesday would not prove a hunting-day: however, a change took place in the night, accompanied with a heavy fall of rain. The next morning, Jan. 15th, the fox-hounds met at Bone Hill-house, a distance of twelve miles from Drakelow, to which Mr. Haughan rode this horse to cover, the rain falling heavily all the way.

I observed the horse on his arrival at Bone-hill was very relaxed in his bowels, and was informed he had been in that state for four or five miles on the road. On his way home the animal had warm gruel given to him, and he was fed at Tamworth.

He travelled back to Drakelow without evincing any pain or uneasiness, although his bowels were still very relaxed. On his arrival at home, and before the groom had finished dressing him, the animal shewed symptoms of spasms: he laid down, rolled over and upon his back, and appeared to suffer much pain.

The groom instantly bled him, and gave some antispasmodic mixture: from this treatment he appeared to experience relief for a few hours, when the pain and general symptoms returned with increased violence. At ten, P.M., Mr. Kent, V.S., Burton, attended, and the animal was again bled by his direction, and also had given to him the agents Mr. Kent usually administers in such cases. Mr. Kent informs me that he left him, at midnight, much relieved.

I saw the horse the next day, accompanied by Mr. Friend, jun., V.S., of Walsall: he was then cool and tranquil, but I found on examination that his pulse was quick and small; mouth and tongue foul; legs cold; with a peculiar heaviness in his eyes. These obser-

vations had scarcely been made, when he again became restless, looked anxiously back to his flank and side, and, in a short time, laid down, rolled upon his back, which position he had chosen during every paroxysm. Thus he lay fighting violently with his hinder and fore legs in the air for several minutes, with evident contraction of the abdominal muscles, and a seeming effort to expel some offending matter from the bowels. Suddenly he arose, stared wildly, and forced his head high up against the wall: after this he again became calm and easy; the pulse and respiration, which had been excessively hurried by these painful efforts, also quickly resumed their former state. He had suffered from similar attacks, and at the same intervals, since three, P.M. From this time there was a recurrence of these painful paroxysms, till death closed the scene about midnight. The post-mortem appearances I think I gave you when I forwarded the morbid specimen to the Royal Veterinary College. I dare not trust myself at this time to make any remarks upon this singular case, further than to hope it may lead to a more correct physiology of the cœcum, which from its peculiar conformation we must, I think, believe performs a more important part in the animal economy of the horse than has hitherto been allotted to it. I remain, dear Sir,

Your's very faithfully,

W. J. T. Morton, Esq., R.V.C. W. ROBINSON.

Mr. Simonds.—In this interesting specimen, for which we are indebted to Mr. Robinson, we perceive the body of the cœcum to be introsuscepted, or turned within itself, so that the peritoneal covering forms the lining membrane of the sac, while the displaced intestine occupies the interior of the colon. Intussusception, or this abnormal change of position in the intestines, often results from a reverted peristaltic action, which generally is preceded by spasmodic contractions of the muscular coat of the intestines. In colic a reverted action is by no means unusual, and by it, perhaps, we could account for the state of parts now before us. But, before arriving at any conclusion with regard to morbid appearances, it is always right to take a retrospective view, and ask

ourselves what is the normal function of the organ we find diseased. Now the base of the cœcum is continuous with the cœcum caput coli, forming here a blind pouch; from this part its apex extends, forming another blind pouch. The cœcum, therefore, forms a sac at both extremities, but has a free communication with the colon by a large opening. From the peculiarity of its shape, it would appear that the ingesta which travels to its apex has to be returned from thence into the colon by a motion of its muscular coat, somewhat analogous to reverted peristaltic action. Now spasm, fortunately, is seldom found to attack the large intestines, but none can question that in this disease inordinate and long continuous muscular contraction takes place; and as the cœcum has normally a double kind of peristaltic action to perform, this action under the influence of such a disease becomes greatly increased: hence probably the cause of this singular inversion. The thickened condition of the coats of the cœcum also deserves some notice. The apex, which part it is fair to presume was first inverted, has its parietes much increased by infiltration of blood between its coats, while that part of the gut which is continued towards the cœcum caput coli becomes less and less dense. Such thickening is the consequence of congestion, and the variations it presents are dependent on the longer or shorter periods that such congestion has existed.

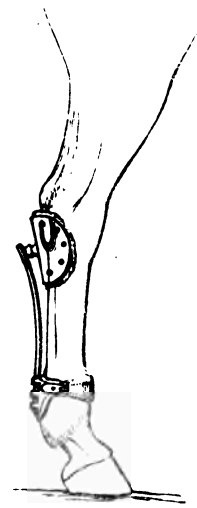
The symptoms which the animal in the first instance exhibited are said to be similar to those observed in gripes; and although no treatment can be expected to afford relief in a case of this nature, yet, to enable the practitioner to form a correct diagnosis, every peculiar symptom becomes of importance in these cases of abdominal disease. It happens that a similar instance occurred some years ago in my practice; and, in order that the symptoms may be compared in these cases, I will briefly relate the particulars. The subject was a black pony. One evening the animal, after returning from work, was attacked with abdominal pain, which was supposed to arise from gripes, and this was rendered the more likely by his having partaken freely of cold water at a stream a short distance from home. Some remedies of a stimulating nature were given, but, these affording no relief, I was requested to attend.

I found the animal in much pain and very restless, lying down,

rolling on his back, then quickly rising again; he looked round at his side; the abdomen was tympanitic; the pulse full, and rather increased in number. These symptoms, however, are generally present in spasm; but accompanying them there was a peculiarity which attracted my attention. When the animal got up, instead of shaking himself as horses commonly do when suffering from spasmodic colic, this pony would raise his head, thrust his nose into the rack, and remain in that position for several minutes, breathing stertorously during the time. Then the pain would recommence with greater acuteness; he would now turn his head towards the abdomen, bite at his flank, and once more lie down, and roll upon his back; but I soon found that his manner of lying down was devoid of the recklessness that characterises spasm, having an appearance not only of consciousness but of care. My opinion was, that some acute affection of the stomach caused these symptoms, and, as sedatives failed to afford any relief, and the patient was gradually becoming worse, I gave the owner but little hope of his recovery. In two days he died. The post-mortem examination shewed all the viscera healthy, with the exception of the cœcum, the apex of which was inverted six or eight inches, and much strangulated. The history of the case now under consideration is at present somewhat imperfect, but Mr. Robinson has promised to send us full particulars at his earliest convenience, and then we shall learn whether any similarity existed in these two cases with reference to the symptoms which the animals evinced. Of course, I do not conceive that they are strictly pathognomonic. We know that different animals express the same feeling by different signs; yet often we may trace a similarity when the disease arises from the same cause. Between inversion and enteritis the duration of the disease will often give us some clue to a correct diagnosis; and I can easily conceive that, with an inverted cœcum, as spasm does not originate in inflammation, the horse may survive three or four days: but in enteritis death usually takes place in eight-and-forty hours.

An Apparatus either to give Pressure, or for the Application of topical Remedies, to Curbs.

Presented by Mr. Robb.



Mr. Robb.—A curb is often viewed as a very simple affair by some persons, and it may be so to a horse used only for slow work; but to a hunter, during the season, it is of serious moment. The usual treatment for curbs may be said to consist in blistering and firing. Pressure, however, has been repeatedly suggested, and, on a horse of my own, I once endeavoured to obtain it by employing sheet lead, and to some extent I succeeded. That the experiment did not succeed perfectly, I attribute to the difficulty I had of fixing any substance upon the hock-joint, and the object of the apparatus I now present to the Association is to overcome this obstacle. It is the invention of an old friend of mine, Mr. Aird, of Glasgow, a gentleman well known in the hunting-field. By means of this instrument he readily obtains pressure, and, as he conceives, gets rid of the lameness arising from a curb, without depriving the animal of that walking exercise which is so essential to the maintenance of a hunter in condition. The instrument almost speaks for itself: it consists of an iron-plate curved in some

measure to the form of the posterior part of the hock, and supported by an iron bar, which is attached to the plate by means of a hinge. The lower end of the bar is inserted into a strap, which is fixed around the inferior part of the metatarsal bone, and above the pastern joint. On either side of the plate there are holes by which it is fastened around the hock, and by which the pressure can be regulated. By inserting any substance between the joint and the plate, pressure to any extent, and equable on every part, may be gained; or, if this be contra-indicated, we are enabled to keep a wet sponge upon the part, or apply any agent we desire.

I think the invention merits attention; and I am assured by those who have tried this instrument, that by its use horses have been able to follow the hounds, which only a week before had sprung a curb. During the hunting season, therefore, its employment must be of service; but when the summer came, I should fire the horse, and turn him out.

Mr. Dunsford.—This invention can only be looked upon as an adjuvant to other treatment, and I do not conceive it can supercede the use of other and more active measures in combatting the evil effects of curbs, though it may in some instances be found of service.

In some hunting stables the hydrochlorate of ammonia is applied to curbs, which, being less active than a blister, does not necessarily prevent the horse from following the hounds. Besides which, when that agent is employed, no blemish is seen, as the old hair never falls off till the new hair has grown up beneath.

Concluding Debate on Influenza in Horses.

Mr. Simonds.—Although I may have nothing new to advance respecting the disease now under discussion, still I may be permitted to offer a few observations on it: if, however, the views I may advocate should appear to clash with the opinions of previous speakers, it will be remembered that I have not been able to be present during the whole of the debate. The name given to this disease, in common with many others, I consider is unfortunate, as it expresses so little and withal is so general in its application, that sometimes serious inconvenience results from its use: for in-

stance, if pneumonia or pleuro-pneumonia should prevail in a district, we hear of it under the term of influenza, and are told that it has proved very destructive, and requires from the very onset the most bold and decisive treatment to prevent its fatal tendency; while probably we learn from other quarters that the malady is mild in its nature, never assumes any active inflammatory character, and consequently prompt depletive measures are not called for. It is only in this way that we can account for the great differences of description which reach us from different localities; and these will continue so long as this indefinite term is retained by us.

On the first evening of this debate some attempts were made to trace influenza to a particular cause. Many views were then advanced, and Professor Sewell seemed inclined to regard it, and all diseases of this nature, as arising from certain mephitic vapours or gaseous compounds of a volcanic origin. These vapours he conjectured to travel within the earth, escaping from its surface as they progressed onwards, and thus generating disease. Quadrupeds he thought were first affected because their respiratory organs are placed nearer to the ground, especially when depastured: thus the nearer the earth, the greater the danger; for he says that persons inhabiting cellars are far more liable to these disorders than those who, living in attics, are further removed from the source of the pestilence. I am not inclined to regard this view as correct, because all the arguments adduced to support it are merely inferences, and the phenomena attending these outbreaks can be otherwise, and to me more satisfactorily, accounted for. The existence of animalculæ, the presence of miasmata, and also a peculiar electrical condition of the atmosphere, have each been stated as the cause of the disease, and many supporters to these several opinions have been found. The first two, however, are of that nature which, did they exist, would admit, to a certain extent, of demonstration; and with regard to the last I am not aware that any particular electrical phenomenon did either precede or has accompanied the present outbreak of influenza, a disease which, in my opinion, cannot be safely attributed to any one specific cause.

I regard influenza as endemic in its nature, and think it may with greater reason be traced to those changes of the weather, and to the great humidity of the atmosphere which characterised the re-

cent season. That it has some connexion with these causes, its appearance in London first upon the banks of the Thames seems to prove; and the circumstance of its having run its course among the cart-horses there located, while those away from the metropolis were comparatively free from its attacks, may be advanced in support of this view of its origin. I therefore consider the cause not as specific but general in its nature; and believe that cart-horses are the first attacked, because their peculiar lax conformation and the artificial condition in which they are kept predispose them to become affected.

In this infirmary we are, perhaps, not so often consulted respecting cart-horses as others; and numerous as our patients have been, in the majority of the cases they were among the lighter and more valuable breeds of horses. Judging from my observations and experience, I should say the present form of influenza affects the mucous membranes generally, but especially those connected with the respiratory organs. The disease may be called inflammatory, if you like the term; but it is from the first unattended with any discharge from the nostrils, like ordinary catarrh, although an occasional cough is present. The membranes are of a pale colour, having a yellow tinge, denoting the chylopoiëtic viscera to be involved in the general derangement. Associated with this state of the mucous membranes we find febrile symptoms, such as quickened breathing and accelerated pulse, but not of that character which demands the withdrawal of blood. Venesection, in fact, is found in very many instances to increase the debility, which always exists to a greater or less extent. I consider, nevertheless, that although the disorder commences in the mucous membranes, it will, if unchecked, extend to the serous cavities; and I have seen cases in which the post-mortem examination has shewn the pleura to have been inflamed, with a deposition of lymph upon its surface. This result must not be allowed, however, to disguise the true nature of the affection, but be regarded only as another instance of the tendency of every morbid action, if not checked by proper measures, to spread and involve other structures beside those originally diseased.

Speaking generally, then, these cases will not endure depletion; for after a few days the disease will have extended to the superficial cellular tissue, and infiltration of the serous parts of the blood into

the eyelids, the legs, and under the abdomen, is observed; which shews that influenza has a tendency rapidly to involve the sub-tissues generally. Whenever the cellular membrane is likely to be affected with dropsical effusions, depletives should be used with the greatest caution. In very few cases have I dared to bleed, and in fewer still have I ventured to repeat it.

With regard to purging, certain agents used by us for that purpose have, in the course of this debate, been strongly objected to. We are told of animals that have been destroyed by the exhibition of a small quantity of aloes, amounting to no more than two or three drachms; and Mr. Ernes has found fatal effects to follow the giving of this drug to cart-horses. Yet I cannot believe that the danger applies to every description of horse, for the author of the Essay says that he has given aloes with advantage; and, in the College infirmary, to every case of this kind requiring a laxative this agent has been administered, and that without any ill effects having resulted in a single instance.

In the treatment of influenza I certainly should not adopt active depletive measures, and especially would I avoid any and all agents calculated to excite the mucous membranes into much increased ordinate action; yet I esteem aloes, in this disorder, to be as safe an aperient as any that can be employed, especially when it is exhibited in solution: for all will allow that the constipation of the bowels which exists in the early stages of influenza must be overcome before any hope can be entertained of a return to health. In those cases where no constipation attends the attack, then, of course, no aperient is indicated. It is the use, and not the abuse, of an agent that most concerns us.

When influenza prevailed, four or five years ago, the disease was far more fatal than it is now. In the years 1836 and 1837, influenza appeared as a true epizootic, attacking every description of horse: its symptoms were marked by the presence of much fever, which led many practitioners to have recourse to blood-letting, and many horses were lost in consequence. The lesson then learnt must not be now forgotten:—Don't do too much; watch well the patient; observe the symptoms; and if blood-letting is necessary to subdue their severity, then bleed; if not, let him alone, and become more the nurse than the surgeon. The disease,

it seems, will run its course. I have seen cases in which no treatment appeared to make any impression. The horse kept getting worse, despite all the measures adopted, up to a certain time, when a change took place, and the recovery became gradual but certain. Do not, therefore, despair even in extreme cases, but throughout the attack attend well to the patient's comforts, and do all in your power to husband the animal's strength.

Mr. Ernes.—The opinion I have before advanced respecting the propriety of giving aloes, appears to me to be fully borne out by the experience that was gained in the treatment of influenza during the years 1836 and 1837. I have always remarked that the use of this agent has been followed by the most baneful effects. Last summer, having occasion to leave London, Mr. Braby kindly undertook the charge of my establishment during my absence. To save that gentleman trouble, I had a quantity of aloetic balls, containing six drachms each, prepared before I quitted town. When influenza first appeared, the owners of horses became alarmed, and applied for a dose of physic, hoping by its timely administration to save their animals from an attack. These balls were given to them, but there appeared to be some peculiar susceptibility present, for within twelve hours the horses were actually purging, and that violently too.

After this, they could venture only on the use of half doses. This shews that during the prevalence of certain diseases, there is a remarkable difference attending the action of particular medicines, and I think the fact merits some attention. My conviction being thus based on observation, I have asserted that aloes is not required in the treatment of influenza; and I would ask, is not that medicine also considered injurious in other diseases? Are we not agreed that it should not be administered in pneumonia? I refer to the drug being so employed as to produce purgation.

I cannot approve of the practice which holds it imperative to purge in every disease. Medical treatment surely consists of other duties than the mere administration of drugs. The comfort and the diet of the patient are necessary to the eradication of disease, and, being so, ought no less to be the study of the practitioner. The owners of horses are, however, too frequently impatient to see something done, and the firmness of the veterinary surgeon is

often put to the test between his sense of duty and the demands of his employer.

Mr. Cox.—I have had some experience in the treatment of influenza, and, as that appears to differ from the course pursued by other practitioners, I am induced to state it. My treatment has been, when called in early, generally to extract blood. When the state of the pulse indicated that the system would not endure venesection from the jugular vein, I have bled from the foot, and this has been followed with good effect. Counter-irritants, in the form of blisters, I have applied to the trachea, throat, and chest; but to the use of setons or rowels in this disease I have a strong objection. Mashes and gruel I have always found sufficient to bring about a relaxed state of the bowels, therefore I employ but little purgative medicine. I give a little nitre, either in the form of ball, or dissolved in the animal's water, taking especial care that a comfortable box, if possible, be provided for the patient, and seeing the body is warmly clothed. Aloes I have found a dangerous medicine in this complaint; but influenza, I think, at different times assumes different forms, and therefore demands different treatment. In proof of this, when influenza prevailed during the year 1836, I then was accustomed to exhibit from ʒj to ʒiij of aloes, and never had any reason to regret having done so. But recently, in 1840 and in 1841, when this disease again appeared, and I then had many cases entrusted to my care, I soon found that aloes, even in very small quantities, was no longer a safe agent. In many it produced speedy and distressing superpurgation, and, in some instances, death resulted from its administration. My opinion now is, that aloes had better be altogether dispensed with in the treatment of this disorder, which I cannot regard otherwise than as infectious; for, on several occasions, I have known animals introduced into a neighbourhood where the disease was previously not present carry away the infection with them, and communicate the disease to an entire stable.

Mr. Ernes.—I cannot but think stronger proofs are called for before any conclusion can be arrived at respecting the infectious nature of influenza. When influenza most prevailed, two horses were brought to my infirmary for an operation, and they were placed in the stable which two others affected with influenza had recently occupied, and only one of them became diseased. In

a stable which held fourteen horses, seven were attacked, and the remainder escaped. In another stable, occupied by seven horses, four were affected, and three remained well. A gentleman, whose horses I attend, has stables at Rotherhithe and at Limehouse. Now, although the horses went constantly from one place to the other, the disease was not communicated, yet all the animals in one stable were attacked, while those in the other escaped. I have here stated facts, and I leave you to draw your own conclusions.

Mr. Woodger.—I have every reason to believe influenza to be highly infectious. At Fulham, I had three loose boxes, the doors of which communicated with a paddock in which there were several healthy horses. In these boxes I placed some animals suffering under influenza, and, for the admission of pure air, left the upper part of the doors open. The healthy horses would come and place their heads frequently within the boxes; and the result was, that every one of the originally healthy animals that were in the paddock became affected with influenza. I have known only one instance in which horses were exposed to the infection, and have not caught the disorder. On the first outbreak, from the number of patients, and perhaps at that time a want of thorough conviction on this point, I placed the animals attacked with influenza in the same stable with my own horses, and of these not one escaped.

Mr. Kent.—In almost every case of influenza which I have seen, the progress of the disease has been as follows:—In the evening you leave the horse to all appearance in perfect health, but on entering the stable the following morning you find him with his neck extended; his breathing somewhat laboured; pulse from 70 to 80 beats in the minute—and generally a seeming degree of unconsciousness present, in which state, if not disturbed, he will stand for hours, perhaps never altering his position, which (although it may be particularizing too far) is generally with the tail turned toward the manger. Should you attempt to move your patient, he will stagger from debility. Sometimes there is a nasty husky cough present.

The extremities will be found cold, or three of them hot and one cold, or *vice versâ*. On the second day, an injected state of the mucous membranes is invariably present, accompanied with

sore throat; and should a cough be attendant upon this, the animal's suffering is great. There is also a discharge from the nose consisting of mucus of a greenish yellow colour.

When found in this state, the treatment I have seen adopted with the most marked success has been as follows:—Remove the patient to a loose box, take off the shoes, bed down well with soft litter, clothe the body warmly, apply warm flannel bandages to the legs, and abstract blood. I have seen two cases in which the patient fell as if shot the moment the blood followed the lancet, certainly before half a pint was taken; but in all other instances it always relieved the patient very much. The medicine administered consisted of the potassio-tartrate of antimony and nitrate of potash, given once or twice a-day as the case required. For the soreness of the throat, local warmth, by means of hot rugs or boiled hay, is the best remedy. After this good nursing is alone required. If, however, there be still present laborious breathing, &c., apply a stimulant composed of water of ammonia, turpentine, and olive oil, or soft soap, of each equal parts, over the chest and sides. Should, as I have seen in three or four cases, the legs become swollen, on or about the third day, insert a seton in the throat, and apply to the legs the liniment of ammonia. The disease seems to run its course in about three weeks generally. The age most susceptible of attack seems to be from two to six years. With regard to aloes, I would observe, that I have seen it administered several times, and as often seen superpurgation follow, and that of rather a serious character: in all it proved very difficult to check, always debilitated the patient very much, and, in my opinion, tended to bring about his dissolution. The quantity given was two or three drachms only. To reconcile the difference of opinion respecting the use of this drug, we must take into consideration the habits of the different animals. The half or perhaps the thoroughbred horse, lives upon the dryest and at the same time the most nourishing food; while the other may, as dray-horses often do, partake of the grain left after brewing, of boiled potatoes, and other watery and relaxing food, all of which assuredly will tend to increase the action of aloes.

In a communication I have received from Mr. John Kent, V.S., Bristol, he says, influenza is such an indefinite term, as to comprehend almost any obscure complaint, according to the wish or fancy of the person who makes use of it.

The symptoms I have observed are, swelling of the head, legs, &c.; the bowels almost always constipated, and the pulse at the onset rarely much accelerated. In such cases I do not bleed, not because I am afraid of bleeding, but because I think it unnecessary.

I have never seen an instance in which aloes has not proved beneficial; and in severe cases, where there is laborious breathing at the commencement of the attack, I do not hesitate to give this drug, combined with the carbonate of ammonia, for the first dose, and afterwards watch the state of the bowels, as a guide to my further treatment. It is true I have seen superpurgation follow the exhibition of aloes, but death more frequently from withholding this agent; for the bowels must be regulated by aperients of some kind, and I have not seen any so controllable as aloes. Calomel I never give; and oil is bulky, dirty, and very uncertain in its action.

Saline compounds are also very uncertain and inconvenient. Enemas certainly no man so strongly condemns as I do as effectual remedies; they are only calculated to please our employers, when all other treatment is useless. If the pulse should be much accelerated, I would bleed any horse in the early stage, when purging was not present: in later stages, in my opinion, it only produces death more certainly.

JANUARY 28, 1845.

Mr. J. GREGSON, V.P., in the Chair.

On the table were laid the morbid parts taken from a horse that had died of the prevailing influenza, forwarded by Mr. Woodger. The history of the case presented no marked features beyond that of the lungs with their investing membrane having become implicated; inflammation of these organs being the immediate cause of death.

REMARKS ON DENTITION.

By Mr. W. SHIRLEY.

FIRSTLY, I shall describe the progress of the teeth in their growth from a mere germ or vesicle, situated between the plates of the maxillary bones, up to the period of their full development

in the mouth. Secondly, consider the subsequent changes which take place in them as the animal advances in years; my main object being to shew how far a thorough and practical acquaintance with these subjects will assist us in deciding as to the age of the horse. At the age of maturity, the horse is possessed of forty teeth, ranged in pairs, in their respective alveolar cavities, each cavity being separated by a transverse septum of bone. The mare, as a general rule, possesses but thirty-six teeth, she wanting the cuspidati or tushes. But I believe that, although they do not usually protrude through the gums, the rudiments of them may generally be found in their respective bony sockets. These forty teeth are divided into incisores, molares, and cuspidati. The incisores are the six superior and six inferior teeth, seen on separating the lips in the front of the mouth. The superior ones being situated in the inter-maxillary bones, and the inferior ones in the posterior maxilla. The molares are the six superior and six inferior teeth, occupying each ramus of the jaws. They are laterally and more posteriorly placed, being but partially visible when the head is thrown back and the mouth wide open; whilst the cuspidati are the projecting ones from each space, between the last incisor and the first molar, those in the superior jaw being placed about an inch behind those in the inferior. Each tooth is divided into crown, body, neck, and root or fang, which latter part is firmly implanted, by what is called union by gomphosis, into the alveolar cavities of the maxillary bones. The molar teeth are constituted by three distinct substances of an entirely different nature and appearance, viz., an inner, an outer, and a middle substance. The incisores and tushes are made up of but two substances. The inner substance resembles bone, but is of greater hardness, and is called ivory; the external is a still harder substance, called enamel, being thickest at the crowns, and tapering over the body, becoming entirely lost in the neck: whilst the middle substance is called crusta petrosa, and is the connecting medium of the several processes afterwards to be described. It also constitutes the molar teeth; but this is by no means its only office; for had the molar teeth been made up of but one substance throughout, although uneven at first, they would soon have become smooth by the attrition to which they are subjected, and consequently unfit to perform that important office of grinding the

corn, &c., for which the uneven surface is admirably fitted, and which, I need not say, is essential to the well-doing of the horse. The crusta petrosa, from being of a softer nature than the enamel, is more readily worn away, consequently, it is always a little lower than that substance, thus insuring an uneven or grinding surface. The enamel dips into the different ridges on the crowns of the incisors of the horse, forming the *mark*, as it is termed, or infundibulum; but in the incisors of ruminants, a different arrangement was necessary, and in them we find that the enamel merely surrounds the ivory, and as the latter substance is more readily worn away than the former, a cutting edge, so essential to those animals having no opposing incisors in the upper jaw, the same laws being in operation to produce it as the uneven surface of the molars to be retained. The teeth are firmly held in their situations by their fangs, by a reflection of periosteum from their sockets, and by the gums, which closely invest them at their necks.

At an early period of utero-gestation, the alveoli are first observed in the form of small hollows or cavities, into each of which is deposited a pulpy gelatinous mass, surrounded by a double and highly vascular membrane: this constitutes the germ of the future tooth. The vessels of these germs communicate so as insure and regulate the growth of the teeth as they advance in development; the alveolar cavities become gradually more enlarged, and at length the surface of the pulp begins to harden, consequent upon a secretion from the internal membrane. The ossification does not, however, proceed alike in all the pulps, but commences by one point in the cuspidati and incisores, and by four or five points in the molares; and, as before observed, it is the uniting together of these different substances that constitutes one of the uses of the crusta petrosa.

The ossification now gradually continues until the whole of the pulp is removed, and its place supplied by the harder constituents of the tooth. The process of enamelling is now commenced by the outer membrane of the pulp taking on the power of secreting at first a substance in a semifluid state, but which subsequently appears to crystallize on the external part of the ivory, which process is always completed before the tooth leaves the gum, which it does consequent upon the lengthening of its fang backwards,

thus mechanically pushing the body of the tooth forwards. The enamel is now as hard as at any future period. What causes these several changes to take place is not, I believe, at present known; and I think they will, like many other of the beautiful provisions of nature, always be too intricate for the limited faculty of man fully to comprehend, much less to be able to explain. I have hitherto mentioned only the development of the temporary teeth; but the formation of the permanent ones is so similar, that they require no separate consideration further than this,—the capsules containing the germs of the permanent teeth are situated immediately under the temporary ones, to which they are attached by what is called the gubernaculum dentis; this attachment only exists between the first three molares, as the permanent incisores come up in a separate cavity, posterior to the temporary ones.

I shall now proceed to a description, as far as is practicable, of the appearances exhibited by the mouth at the different periods of the horse's age, from birth upwards.

I propose to adopt a numerical arrangement of the incisores, the same as the molares, by first dividing them into two sides, and proceeding outwards from the centre, terming them, first, second, and third, which, I think, will be better understood than the course usually adopted of designating them the anterior, middle, and corner. The colt is generally foaled with the first pair of incisores projecting in the superior jaw, and the inferior ones make their appearance in a few days afterwards; these teeth, however, will occasionally vary in their development; but, as a general rule, they will all four be cut within a week after birth; the superior ones, nine times out of ten, presenting themselves first.

At a month or six weeks the second incisores are cut, but they do not usually get up level with the first pairs until upwards of two months, and between seven and nine months the third or corner teeth are cut. These teeth are much slower in their growth after being cut than the preceding ones, looking shell-like, and very much resembling, save in size, the rising five year old corner teeth when first put up; indeed, the mouth at this period bears a general resemblance to one rising five years old, and might at a first glance be mistaken for that age. I once knew a pretty good judge of the age of horses, who exchanged his horse for a pony, thinking him to be rising five; but when he came to examine

him more at his leisure, he found him to be no more than a yearling. The mouth, however, at this period is much smaller; the teeth also, which are now only temporary, are whiter and smoother on their anterior faces, and appearances of the animal generally, if well observed, are sufficient to guard against this error.

On the attainment of the twelfth month, the first incisores will shew slight marks of wear on their crowns; still being sharp on their anterior edges, and close together, and there will be a cavity or infundibulum on their surfaces.

As the colt approaches his eighteenth month, the second incisores will present marks of wear, and at two-years old they will all have a more even surface, and commence contracting at their necks, which process will continue increasing until nearly thirty months, when they will often appear considerably separated from each other: the gums at the roots of the first incisores will inflame and become enlarged, shewing the spot at which the permanent incisores will make their appearance; and when the fang of the temporary tooth is sufficiently absorbed, the crown will be shed, which will happen, as a general rule, at about the thirtieth month.

The appearance of the mouth cannot now be mistaken, and the superior teeth will generally be through before the inferior. If, therefore, it should be necessary to examine a horse as to his age in the autumn, and his first incisores are found just through, you may be sure that he was two years old in the previous spring, and reckon him an early or late foal, according to the appearance of his mouth at that time, taking into consideration the history of his previous treatment.

The colt is now thirty months old. The time between the temporary teeth being shed and the permanent ones becoming level is generally upwards of a month.

From this period there will not be any material difference until the beginning of the third year; but should any difficulty arise, it is easily obviated, by remembering the time of year, always supposing the colt to have been foaled in the spring: at this time the permanent teeth will be broader, larger, and slightly worn on their surface.

These different marks of wear will continue increasing on the surface of the first permanent incisores, until the colt is nearly three and a half years old, when the fangs of the second temporary

teeth will be sufficiently absorbed to cause their shedding, and the second permanent incisores will appear similar to the first, which will take place about the forty-second or forty-third month from the time of birth; so that, should the veterinary surgeon now be called upon to give his opinion as to the age of the horse, there will be no difficulty.

From this time until four years old, these teeth undergo the same change as the first pairs of incisores, from which latter period until four years and a half they continue to undergo additional changes, by the attrition to which their surfaces are subjected, and by the development of their bodies, when the gums at the roots of the third incisores inflame, and, those teeth dropping out, are replaced by the permanent ones. At this time, or generally a month or two earlier, the cuspidati or tushes make their appearance, which several changes will, as a general rule, be completed by the fifty-fourth or fifty-sixth month after the birth of the animal. At five years old the corner or third incisor will be up level with the other incisores, and the tush considerably more developed than at four years and a half.

Mistakes are often made between the fifth and sixth year, by directing the attention too exclusively to the first pairs of incisores, which will often, even at five years old, be so much worn, that the mark is entirely obliterated: particular attention, should, therefore, in all such cases, be paid to the third incisor and tushes, the appearances of which are a much safer guide to the true age of the horse than are any of the other teeth. At six years old, the cavity in the third incisor will have become nearly filled up, the mark in the first incisor generally obliterated, and the tush by this time will be much longer and broader, but still quite sharp internally.

At seven years old the mark is nearly obliterated from the second incisor, and the tush is nothing like so sharp as before, while it will commonly be entirely smooth on its internal surface, and the mark from the third incisor is gone at eight years old.

The latter are, of course, only *general* rules, for I have seen horses at ten and twelve years old, who had not then lost the mark in their corner teeth: there is, however, always some peculiarity in the appearances of such mouths, which cannot fail to strike the eye of an experienced practitioner, and he will give his opinion accordingly.

From this period, upwards, there is very much uncertainty connected with the age of horses, which I shall not enter upon: there are, however, those who have attempted to describe the age by reference to the teeth, at all periods of their lives, from colthood up to sixty years, and who have been at the expense of publishing their views on this subject. It now becomes necessary to describe the appearances of the molar teeth, which I consider are much better described separately, as it appears to me that the mixing them up with a description of the incisores creates a little confusion, and makes the subject more difficult of comprehension. In describing the changes to which the molares are subject, it will be desirable to refer at all times to the state of the incisores, which, having been already fully understood, will render the whole clear and intelligible.

As before stated, there are at birth three molares on each side of the mouth superiorly and inferiorly, making in all twelve, these being all temporary.

At one year old, the colt cuts one tooth posterior to these which is permanent, and consequently is the first permanent tooth that he cuts, being the fourth in situation.

Immediately preceding the completion of his second year, he cuts another tooth posterior to the fourth, being, of course, the fifth in situation. About his thirtieth month, being the same that he cuts his two first incisors, he sheds his first temporary molar, and a permanent one comes up in its place.

At thirty-four or thirty-six months the same happens to his second molar in position, whilst the third and sixth molares in position are cut about the forty-second month. I have never seen a head in which these two pairs of teeth were not fully up by four years old.

REPORT OF THE COUNCIL OF THE ROYAL COLLEGE OF VETERINARY SURGEONS TO THE MEMBERS OF THE PROFESSION.

THE Council of the "Royal College of Veterinary Surgeons" have great pleasure in presenting to the members of the profession the first Report of their proceedings, a measure they have been induced to adopt, in order that the utmost publicity

may be given to the arrangements they have thought it essential to make for the advancement and good government of the body of which they are the representatives, and for maturing the liberal and enlightened views contained in the Charter of the infant Institution.

It has been a subject of sincere congratulation to the Council that the Charter itself has met with the unqualified approbation of nearly every member of the profession, and not from them only, but from the members of the medical profession also, as well as from the heads of departments well qualified to form an opinion on the subject, but who could scarcely have been expected to have had either inclination or leisure to examine its merits. By some of its own members proofs have been given of the sincerity of their approbation too significant to be mistaken: we allude to the loans so handsomely made when pecuniary resources were indispensable, and to the liberal donations with which those loans were followed up by various practitioners; and it is a pleasure as well as a duty of the Council to return their sincere thanks to those gentlemen who so liberally came forward, and they doubt not they shall ultimately have to do the same to every member of the profession, although, as yet, there are some whose names they regret not seeing in the list of contributors.

On entering on the duties of their office, your Council felt that two points required their immediate attention: the first was, the making such temporary arrangements and appointing such officers as were essential to the working out of the Charter. The arrangements made may or may not have been the best that could have been adopted; for, in carrying out any new and important measure, without any precedent to work by or time to give mature deliberation to the subject, it could not be expected but that the best suggestions of the moment were those that must be acted on, and they accordingly were so; with what effect, the slight alterations only that have since been made in them afford the best proof. The officers elected were six Vice-Presidents, a Treasurer, and Secretary; Messrs. Sewell, Cherry, E. Turner, J. Goodwin, C. Spooner, and J. Turner were elected Vice-Presidents; Mr. F. King, jun., of Stanmore, Treasurer; and Mr. Gabriel, Secretary. The second point was, providing for the examination of the students then studying at the Royal Veterinary College of London and the

Veterinary College of Edinburgh: accordingly, it was resolved that the examinations for the session just then about to terminate should be conducted agreeably to the plan already pursued at those institutions; and, in order to effect this, they elected a temporary Board of Examiners for each School, in which they included those gentlemen who had already officiated for that purpose, with the addition of a certain number of veterinary surgeons in the place of those disqualified as teachers from examining.

The first of these examinations took place at the Veterinary College of Edinburgh immediately after the election of your Council: at this examination a deputation consisting of Professor Spooner, Mr. Gabriel, and Mr. T. W. Mayer, attended on behalf of the Council, and the Report of the Deputation was by no means satisfactory to the Council. Forty-five pupils presented themselves for examination, of whom forty-one were passed, and four rejected. It appeared that there was no examination on Chemistry—none on Materia Medica—none on Physiology—none on the Diseases of Cattle that deserved the name: there were by far too many leading questions, and the examinations were very unequal. The Report expressed a hope that the necessity of practical knowledge should be kept prominently in view in future examinations. It appeared to the Deputation that Professor Dick was willing and anxious to carry out any suggestions that might be offered for the improvement of his School, and with many of his plans the Deputation expressed their approval.

By the liberality of Professor Dick, two Silver Medals are annually given,—one to the pupil who passes the best examination, and the other to the one that produces the best anatomical preparation. Some irregularities occurred at this examination which the Council thought proper to notice: these were, allowing parties not appointed by your Council to take part in the examinations, and Professor Dick walking round to each Examiner, and, in a whisper, taking his opinion as to the qualification or disqualification of the student.

After a long correspondence on these points, the Council, considering that, owing to their having been elected only a few days previous, and that they had not had sufficient time to issue needful instructions to the examiners, resolved not to take any further notice of the proceedings. They derived, however, great plea-

sure from the support they received in their views on these subjects from the veterinary surgeons in Glasgow; and they cannot omit taking this opportunity of returning their thanks to them, and many other of their friends in Scotland, for the manner in which they came forward and avowed their sentiments on this occasion: these gentlemen not only expressed themselves in the highest terms in praise of the Charter, but they called a meeting of the profession in Scotland, to take into consideration the grievous state of veterinary education in the North, and explained, by a Memorial to the Council, adopted by them at this meeting, their views of this subject in plain and forcible language, and added many valuable hints for consideration; a liberal subscription, at the same time, having been entered into to carry out the object of the Charter.

The examinations of the students of the Royal Veterinary College of London took place immediately after the examinations in Scotland: out of fifty-six examined, forty-one passed and fifteen were rejected; and here, again, the Board would have been well pleased to have reported equally favourably of the division of cattle pathology as of the others preceding it: on all other points, however, the pupils passed a far better and more extended examination than their *confrères* in the North.

The Council received with much surprise a communication from the Home Office, dated July the 10th, 1844, containing copies of two petitions which had been presented to Sir James Graham from the Royal Veterinary College of London. Copies of these petitions, with the answer of your Council, have already appeared in "The Veterinarian," and it was a source of much pleasure to the Council to have it in their power to refute by a plain statement of facts the unfounded assertions lodged against them: they regret, however, that the Governors of the Royal Veterinary College should have been so far misled as to have made the statements contained in their petitions without proper inquiry from those most capable of giving them information.

The annoyance which this matter occasioned was increased in consequence of the Highland Agricultural Society of Scotland petitioning for a distinct veterinary charter upon equally untenable grounds.

The attention of the Council was, however, withdrawn from the

consideration of those painful subjects by matters of far more interest to themselves and consequence to the profession, viz. the formation of Bye-Laws and Regulations for the governance of the body politic and corporate. In the consideration of this important subject they kept steadily in view two distinct objects; first, justice to the present and future pupils of the two veterinary colleges; and, secondly, the well-being and good of the profession. After much consideration, the Bye-Laws already before the profession were adopted by the Council; and although these are not such as they hope finally to make them, yet the results already derived from their adoption, and the manner in which they have been received by the profession, have been such as to afford the Council unmixed satisfaction. Immediately after the adoption of these Bye-Laws, the Council appointed a permanent Board of Examiners, a board composed of gentlemen whose names stand high in the medical and veterinary professions:—E. Stanley, Esq., Chairman, Member of the Board of Examiners of the R. C. S. L.; Prof. Brande, of the Royal Institution; B. Cooper, Esq., of Guy's and St. Thomas's; R. Liston, Esq., of the London University College; Messrs. Percivall, J. Turner, W. Field, W. Goodwin, G. Baker, and E. N. Gabriel, for England; and Drs. Knox and Mercer, of Edinburgh; Drs. McGregor and Lyon, of Glasgow; and Messrs. Williamson, Mather, Edinburgh; Tindall, Glasgow; Lyon, Forfar; Thomson, Beith; with the veterinary surgeon of the regiment then stationed at Edinburgh, for Scotland. Their anxiety for the good of the profession, their labour for the advancement of veterinary science, and their desire to render the examinations such as the Council wish them to be, have given the greatest satisfaction, and the Council cannot refrain from expressing the sense they entertain of their valuable services.

Aware of the great responsibility imposed upon them, and feeling most anxious to carry out the views of the Council, they have again and again deliberated on the best mode of ascertaining the extent of information possessed by those candidates who might appear before them. Two points have received their especial consideration—the extent of the pupils' knowledge of chemistry and of cattle pathology; the first not only as applied to the knowledge of medicines and the principles of veterinary prescriptions, but as applicable also to the nature of the various soils and the

different kinds of manures, as possessing the most fertilizing properties in their application to them. The great advantages that have already arisen from the combination of chemistry with agricultural operations are too well known to require further comment.

The second, the knowledge of cattle pathology, is an object also of grave importance, for hitherto the diseases of cattle and other domesticated animals have been most lamentably neglected: the knowledge of this fact alone would have been sufficient to induce the Board to institute a strict inquiry as to how far this defalcation had been attempted to be supplied, even had not the two influential and important bodies, namely, the Royal Agricultural Society of England and the Highland Agricultural Society of Scotland made this one of their prominent objects. The Highland Agricultural Society has already come forward to assist the Council in their endeavours to advance the education of the pupil on these important subjects, by giving a Silver Medal to the pupil who shall pass the best examination in Chemistry, and this, too, be it remembered, in the face of a protest from the Professor of the school they patronize and protect against such a subject being taught in his class, several of its members also paying the greatest attention to the investigation of the pupil in the department of Cattle Pathology. The English Agricultural Society, again, has declared that this latter branch demands the most scrutinizing test on the part of those empowered to qualify a student to become a member of the veterinary profession.

The results that may be expected to accrue from the altered state of affairs brought about by the Charter, and from the system now adopted by the Board of Examiners, may, in some measure, be seen in a review of the examinations that have taken place in London and Edinburgh during the last few months. Up to March 25th the examinations were conducted on the same plan as those of the Board elected by the Royal Veterinary College of St. Pancras. Two or three gentlemen took each pupil and examined him on the different branches of his studies; but it was found frequently to happen, either from the nature of the questions or the inaptitude of the pupil to answer, that one branch occupied an undue portion of time, to the unfair curtailment and too often neglect of those to follow, and a very unequal examination was the result. To remedy this evil, the President of the Royal College of Veterinary Surgeons, the Chairman of the Board of Examiners, and the

Secretary, had a meeting at the Royal College of Surgeons to ascertain the plan there acted on, and to decide how far it was applicable to our own Board: the Report was favourable, and the Secretary was requested to make himself master of the system there adopted, which was declared both by Mr. Stanley, one of their Examiners and Chairman of our Board, and Mr. Belfour, their Secretary, to work most admirably, and to be very superior to any before had recourse to. It was accordingly brought under the notice of our Board, at its meeting on the 15th of May, and is as follows :— Instead of each pupil appearing before the whole Board at once, the Board is distributed at four tables, one devoted to chemistry, a second to anatomy and physiology, a third to the pathology of the horse, and the fourth to cattle pathology. Each pupil is examined for a quarter of an hour at each table, thus having to appear in rotation before the whole of the Examiners, and to go through a well-divided examination of one hour.

Owing, however, to some opposition from the Professors and Teachers of the Royal Veterinary College of St. Pancras, this plan was only partially carried out, three tables being substituted for four, and three quarters of an hour for the hour's examination. So well, however, did even this defective adoption of the plan work, that both the Examiners and the examined declared it a very great improvement on the old system; and, as a consequence, the entire plan was brought into operation at the meeting of the Board on the 21st of May, after some further slight attempts at opposition from the Lecturers at the Veterinary College of St. Pancras, and the result was most happy. Every pupil underwent an equal and searching examination on every branch of his education: chemistry and cattle pathology received their due share of consideration, and must, consequently, in future be considered important parts of the curriculum of education. Every member of the Board engaged was satisfied and delighted with the result, and every pupil who appeared before it acknowledged its efficiency and entire freedom from restraint or annoyance. The number of students already examined this year is forty-one; of whom thirty-three were passed and eight rejected.

The examinations at Edinburgh of this year, although not brought to the same degree of systematic regularity, were very considerably improved. The same principle was acted on as in London, one Examiner taking each candidate on one of the before-

named branches of education. The number examined was twenty; of these, seventeen were passed and three rejected. This difference, however, in the proportion to last year was not owing to any falling off in the qualifications of the pupils, who, as a body, were very superior to their predecessors, but to the much more stringent and extensive course of examination they had to undergo.

Your Council, therefore, rely with the greatest confidence on the Board of Examiners, well knowing that their best exertions and undivided attention will be given to the ascertaining the qualifications of the student, thereby rendering your diploma a valuable and efficient guarantee for the capability of its holder; to the cautious but firm rejection of the candidate who from carelessness, inattention, or incapacity, shall not have acquired those attainments they consider so essential to his future well-doing; and to the keeping pace in their examinations with the onward progress of science and practical information.

In conclusion, the Council beg to express to the members generally their satisfaction at the results already derived from the Charter: they feel it their duty to endeavour, by every means at their disposal, to render its benefits of greater utility to the profession; and, while they are determined to maintain the charter inviolate, it is their wish to listen to any suggestion, to consider any project, to adopt any plans that may be thought desirable for the interest of veterinary science; and they will at all times be ready to receive the co-operation of those influential Institutions, already alluded to, that so kindly take an interest in their proceedings for this purpose; in the firm conviction that they, the Royal Agricultural Society of England and the Highland Agricultural Society of Scotland, will thus be materially assisted in carrying out their own enlarged and important intentions; while the Royal College of Veterinary Surgeons will receive an impress from their support and co-operation that will go far to sustain it in that independent, but, at the same time, efficient and useful position, in which it will always be its proudest boast to be placed, but which education and science alone can enable it permanently and honourably to retain.

London, June 6th, 1845. E. N. GABRIEL, *Secretary.*

Minute of Council, June 6th, 1845.

"That the Report now read be adopted, and that the Editors of THE VETERINARIAN and THE VETERINARY RECORD be requested to insert the same in their respective Journals."

E. N. GABRIEL, *Secretary.*

NAMES *of those who have obtained their* DIPLOMAS *from the* ROYAL COLLEGE OF VETERINARY SURGEONS, *late Pupils of the Royal Veterinary College, London.*

May 16, 1845.

Mr. William Cox, Ellastone, Staffordshire.
Mr. James Broad, Winsley, near Bath.
Mr. George Robb, Glasgow.
Mr. A. Burke, Cahir, county Tipperary.
Mr. H. J. Cartwright, Liverpool.
Mr. E. C. Crowly, Cork.
Mr. Henry King, Morpeth.
Mr. J. J. Hazell, Great Bromley.

May 21.

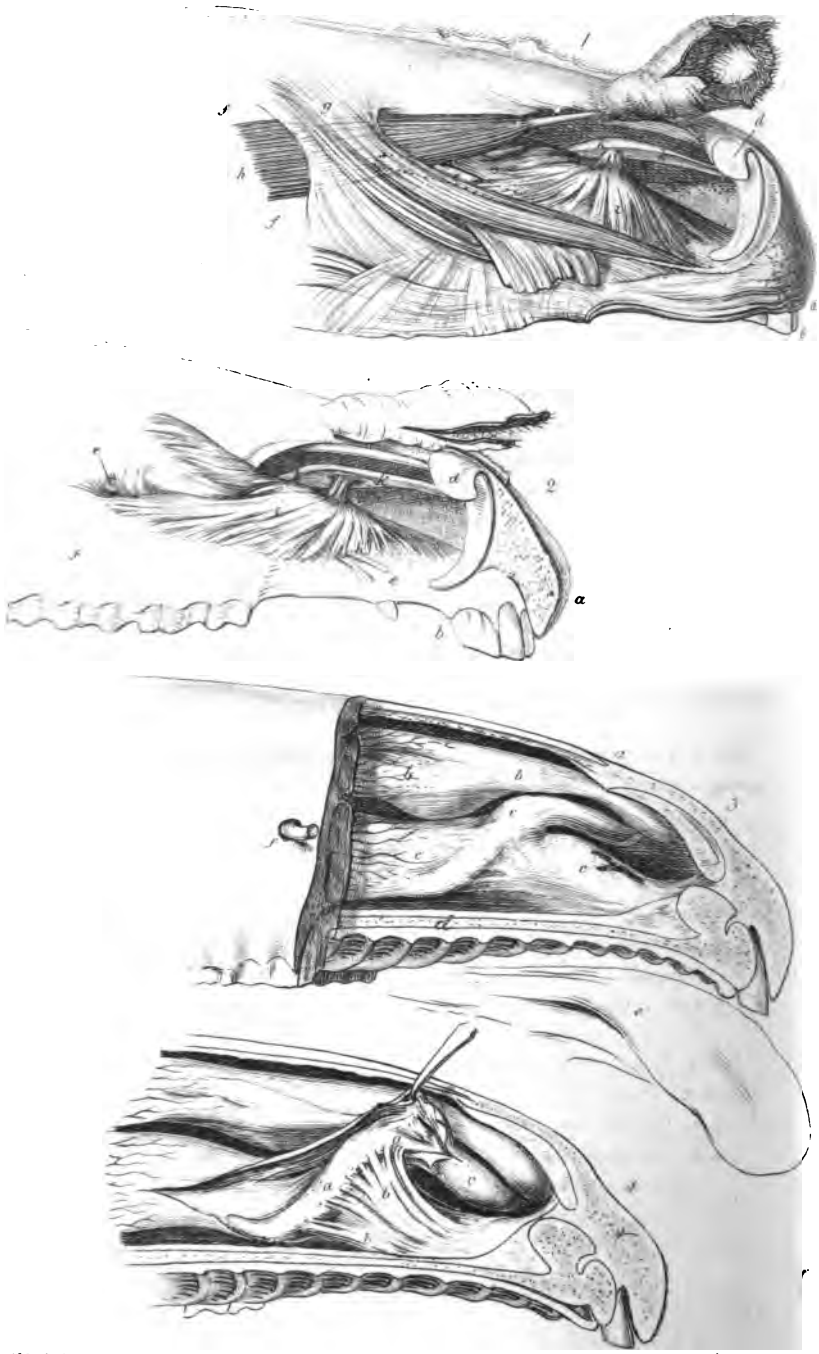
Mr. Thomas Overton, Harboro' Parva.
Mr. John Gregson, Liverpool.
Mr. William Shirley, Staines.
Mr. Abraham Fowler, Shrivenham, Berks.
Mr. Alexander B. Henderson, London.
Mr. Thomas Wright, Brighton.
Mr. T. D. Gregory, Chard.
Mr. John Jekyll, Lincoln.
Mr. Anthony E. B. Green, March, Cambridgeshire.
Mr. Alfred Williams, Bristol.
Mr. Augustus Crook, Eaton, near Norwich.

June 4.

Mr. William Johnson, Lincoln.
Mr. Matthew B. Brake, London.
Mr. George Stowe, Warwick.
Mr. Charles Edward Short, Blandford.
Mr. Brand Garner, Foxton, Cambridge.

June 11.

Mr. James Fenner, Clare.
Mr. Charles Scarr, Stortford.
Mr. W. C. Crabbe, Bungay.
Mr. Thomas Jones, Wrexham.
Mr. William Dyer, Croydon.
Mr. William Helmore, Exeter.



R. Knox. M.D. del.

J.D.C. Sowerby

DESCRIPTION OF PLATE II.

Fig. 1. Displays the anatomy of the nostril, as seen on removing the integuments and cellular substance.

a. Upper lip.

b. Incisive teeth.

d. Alar cartilage, by some considered as two.

e. Infra orbitar branch of the anterior maxillary nerve.

f. Superior maxillary bone.

g. Levator labii inferioris alæque nasi.

h. Nasalis longus.

i. Nasalis brevis.

k, k. Spur-shaped cartilage, and prolongation into which the nasalis brevis is inserted.

Fig. 2. Right nostril—deeper view. In this view the letters employed in describing the preceding figure also apply here.

Fig. 3. Left nostril, seen from the inside, the septum and the right nostril having been removed.

a. Nasal bone and lateral cartilage, or nasal peak.

b, b. Superior turbinated bone.

c, c, c. Inferior turbinated bone, spur-shaped cartilage, and fibrous prolongation.

d. Hard palate.

e. Tongue.

f. Infra-orbital foramen and nerve.

Fig. 4. Same nostril as the preceding, but dissected by stripping off the mucous membrane from

a, a. The spur-shaped cartilage.

b, b. Fan-shaped muscle—the antagonist of the nasalis brevis.

c. Fibro-membranous prolongation from the spur-shaped cartilage, drawn upwards with a hook, in order to put the cartilage and its internal muscle on the stretch.

THE

VETERINARY RECORD, &c.

VOL. I.] OCTOBER 1845. [No. 4.

ON THE USE OF THE CHIOCOCCA RACEMOSA, THE CAINCA OF BRAZIL, FOR "CHARBON" IN THE HORSE.

By RICARDO DE GUMBLETON DAUNT, M.D. *Edinburgh*, and L.M. *Rio de Janeiro*.

To the Editors of THE VETERINARY RECORD.

Gentlemen,—ALTHOUGH entirely unacquainted with comparative pathology and therapeutics, yet the importance, in a politico-economical sense, of the multiplication and conservation of the domestic animals has caused me often to notice any thing peculiar respecting them wherever offering itself. In this way I became acquainted with the fact I now make known to you, in the belief that it will prove of use. During a residence, in the latter part of the past year, in the district of San John de Macahé in this empire, I found that the "Pustule Maligne," or "Charbon," was a frequent disease among the under-bred and poorly kept horses of that district, and that the peasantry combated it with general success by the internal administration of the shrub known here as the Caïnca, the "Chiococca Racemosa" of naturalists. Knowing the fatality of this disease among cattle in many European countries, and its fearfully contagious nature, it being most commonly fatal to those employed about such animals, it has appeared to me that the Caïnca (which may be procured in the European drug-market, and which, as the chiococca racemosa of the family of the Rubiaceæ, is described in the *Histoire Naturelle Medicale* of Professor Richard, and in the *Materia Medica* of Messrs. Merat and Delens) deserves a fair trial. I could not

learn whether this drug was likewise applied to cases of this disease occurring in the human subject in this country. In giving it to animals, the dose must be apportioned in the first trials by an approximative relation founded on the statements given by the two French authors named of its dose for the human subject. That the caïnca possesses most powerful properties is not to be doubted, it being most popular among the natives in all cases where a general corruption of the circulating fluids exists, as in all diffuse cellular inflammations, &c.; and probably it might not be without action in equinia. It decidedly merits a more extended trial in Europe than the efforts of M. de Langsdorff obtained for it about sixteen years ago, when his attention was called to it during his travels in the interior of Brazil.

I have the honour to be,
Gentlemen,
Your most obedient servant.

Campinas, Interior of the Province of San Paulo, Brazil, 20th January, 1845.

Sir W. Hooker, in his *Exotic Flora*, tab. 93, says, "The Chiococcum racemosum is a moderate sized shrub, growing, according to Browne, in Jamaica, St. Domingo, and Barbadoes; also at Carthagena, and, according to Michaux and Pursh, in Georgia and Florida. It attains the height of seven or eight feet; is much branched, and the branches are opposite, round, smooth, and so slender as to require support. Leaves one or two inches long, ovate, tapering at each end, with a short footstalk; shining, subcoriaceous, waved and entire at their margins, with a distinct central rib, but very obscure lateral veins.

"The flowers are produced from the axilæ of the upper leaves, in small but graceful drooping racemes: they are secund. The calyx of five brown erect teeth; the corolla infundibuliform, pale yellow; its tube somewhat angular, and the limb of five spreading ovate segments; stamens, five united at their bases, shorter than the corolla; anthers pale yellow; germen compressed, roundish-ovate, obscurely two-lobed, two-celled inferior. Style filiform, longer than the tube of the calyx. Stigma clavate, bifid. Berry snow-white, roundish, slightly compressed, pulpy, crowned with

the teeth of the calyx. Seeds one in each cell, compressed, pendent by a short stalk.

" Was introduced to our stoves (where, however, it does not ripen its fruit) by Dr. Sherard, in 1729. The root in its native climate is employed as a strong resolutive and attenuant: it resembles seneka snakewort, and has a bitter acrid taste."

Chiococcum racemosum is also mentioned in Loudon's *Hortus Britannicus*, p. 80, and by Professor Burnett, in his *Outlines of Botany*, vol. ii, p. 912.

MM. Merat and De Lens, *Dictionnaire Universelle de Matière Medicale*, under the head of *Chiococca racemosa*, states, " It is called Caïnca by pharmacologists. This tree grows in Brazil, the Antilles, &c. The root is " *tracante*," fibrous, covered with a brown bark, marked with annular rings, and has a disagreeable volatile scent, like that of valerian. The taste is aromatic, bitter, and very nauseous. The woody part is whitish. A weak infusion produces only purging; when stronger, it is drastic, vomitive, and causes sweating. From these properties it may be employed in apoplexy, paralysis, " la demence," &c., and especially in " hydropisie."

Professor Spitta has administered it successfully (*Bull. des Scien. Med. Ferussac XII*, 76); and the same magazine records two cases, where it was given in the dose of two " gross" to nine ounces of water, of which the patients took two " cuillerées a bouche" four times a-day. In the Antilles, where it is known under the name of Petit Branda, it is employed (says Mr. Browne) in syphilis, rheumatism, &c. Dr. Soares, of Meirelles, says, that in Brazil it is employed in pica, to which the negroes are very subject: also in amenorrhœa (*Journ. de Chimie Medicale*, 1826, p. 239). M. Langdorff regards it as a diuretic and sialagogue. It is particularly in lymphatic and exanthematous affections that he thinks it preferable to sarsaparilla, and to lobelia in " les indurations viscerales." He has cured three cases of " migraines hysteriques" with it, and employed it in powder in ulcers of unhealthy character. The caïnca is " desobstruant, resolutif et purgatif," according to the dose. The dose is commonly of two to four grains in a pint of boiling water, and not of two ounces, as stated by some. In powder, it is given in doses

of twenty to thirty grains; its less efficacious extract from thirty-six to seventy-two grains. Mr. R. Brande has analysed it, and finds a new alkaline principle approaching emetine in it (*Journ. de Chimie Med.* 1829, p. 75). Two grains given to a puppy two months old produced only vomiting and agitation (*Bull. de Sc. Med. Feruss. XVIII*, 110). It is to be observed, that all we have said of *C. racemosa*, M. Martius attributes to his *C. anguifuga*. This root is not yet an article of commerce: it has been obtained for a year or two "par la voie d'Hamburg," in small quantities, under the "nom vicieux" of root of Cairea.

According to Professor Brande (*Manual of Chemistry*, p. 1199), Pelletier and Caventon obtained an organic acid from the cortical part of the caïnca root. It is procured by dropping hydrochloric acid into a decoction of the root, when it is gradually deposited in small crystals; or more perfectly by evaporating a strong alcoholic tincture of the root to dryness, dissolving the residuum in water, precipitating by lime, and decomposing the calcareous salt that falls by oxalic acid: the caïncic acid must then be purified by re-crystallization.

Caïncic acid is intensely bitter, and requires 600 parts of water for its solution; but it is very soluble in alcohol, and the solution, if saturated when hot, deposits the acid in tufts of crystals as it cools. Ether dissolves it as sparingly as water. With ammonia, potassa, lime, and baryta, it forms soluble neutral salts, which are not crystallizable, from which the acids throw down the caïncic acid.

From Liebig's analysis, this acid appears to consist of—

Carbon	15	90	57·0
Hydrogen	12	12	7·6
Oxygen	7	56	35·4
Caïncic acid	1	158	100·0

On Charbon.

By Mr. W. Ernes, *M.R.C.V.S.*

Charbon, or Anthrax, is a disease of an inflammatory and gangrenous nature; its characteristic, the formation of an irregularly shaped hard tumour underneath the skin, involving only a small portion of the contiguous cellular tissue. It is surrounded by a margin more or less elevated, and is somewhat depressed in its centre, which is sometimes perforated with an almost imperceptible opening. At first it appears but little raised above the skin, but it becomes, and that very quickly, of an enormous size, and is accompanied by great heat and acute pain. Irritative fever quickly supervenes, and gangrene first shews itself in the centre of the tumour, extending to its circumference with incredible rapidity, and leaving an eschar or scab of a blackish colour, similar in appearance to extinguished charcoal; hence the name given to the disease, "charbon." This eschar is sometimes several inches in diameter. It is almost always preceded by phlyctænæ, which form a vesicular areola around it, sometimes with and at other times without inflammation. Whether this areola exist or not, the eschar is generally associated with more or less œdematous swelling, arising both from emphysema and an infiltration of serum or sero-gelatine into the cellular tissue, which crepitates under the fingers when pressed. The virulence of this disease is often so great, that the animal falls a sacrifice in less than twenty-four hours after the attack: rarely does it last more than thirty-six hours.

This disease is frequently met with in hot climates, and I have reason to believe it is very prevalent in the tropics, but it is not unknown in more northern latitudes. The affection designated black quarter in cattle, in this country, is true charbon. Blain, or glosso-anthrax, is another variety, differing only in the seat. Cases occasionally occur in other animals in cold countries, but the disease does not assume the same form nor is it so intense as in hotter climates. A case occurred in my practice in 1841, in a grey gelding. I was sent for about eleven o'clock at night to see the patient, which I found sinking, having a charbonous tumour

on the outer coronet of the off hind foot. Although the case was beyond the reach of remedies, I was anxious to trace the progress of the disease, and therefore I called the next morning, when I found the animal had died suddenly a few hours after my visit. I was informed that the horse was very well a short time previous, but, being itchy about the legs, they had dressed them with an infusion of tobacco, and they thought that had poisoned the part; but as I have frequently dressed horses in the same way without any such result occurring, I concluded that the tumour was true charbon, in which gangrene had taken place when I saw it.

Hurtrel d'Arboval observes, "That all domestic animals, more particularly the herbivorous, are subject to charbon; but it varies in character, not only according to the kind of animal, but also as to the parts attacked. Being highly contagious, it is transmitted with the greatest facility not only from one animal to another, but also from animals to man, whenever the surface of the tumour is brought in contact with an abraded part of the body, especially the mucous membranes. The charbonous tumour, which is generally single in the monodactyles, in the didactyles is often met with in numbers. Sometimes it presents the appearance of a cellular infiltration, occupying a great extent both in length and breadth, on which appear several phlyctenæ, which are soon converted into eschars. It is in this way that sheep are frequently attacked about the inguinal and axillary glands; the tumours extending over the inner surface of the thighs and arms, and under the thorax and abdomen. This form of disease often causes great losses among the flocks, and is therefore of importance to be well known. The same variety sometimes attacks oxen and swine, and by the inhabitants of the country is called *charbon blanc*. In the ruminants it appears to be a deep-seated disease of the cellular tissue, or a charbonous typhus, which gives rise to a sanguino-gelatinous accumulation in the panniculus carnosus, followed by gangrene of this muscle, with infiltration. The affected parts become almost instantaneously disorganized; the skin appears as if inflated or detached, giving way to the pressure of the fingers, when a certain degree of crepitus is heard. These lesions are accompanied with a general loss of strength; rigors supervene, and soon an icy coldness of the horns and ears is felt; all the excretions are suspended; an infectious odour is exhaled

from the pores of the skin; and meteorization, or a colicky diarrhœa, takes place, which soon terminates in death. The carcasses of all animals that have fallen a sacrifice to this disease exhale a most offensive and peculiar smell, difficult to bear, and this process of putrefaction is always very rapid. It appears that fetid humidity arising from the emanation of drains, slaughter-yards, and other sources of infection; a prolonged sojourn in low and damp localities, in the midst of animal and vegetable exhalations during the heat of summer; marshy lands, where animals pass the cold nights, preceded by hot days; are causes favourable to the spontaneous development of charbon. The more direct influences which produce it are the immediate contact, or a kind of accidental inoculation; exhaustion from long journies, or excessive labour; the infected air communicated from the sick to the healthy animal under the same roof, or an otherwise contaminated atmosphere; in other words, contagion. Charbon is enzootic in low, damp, and marshy districts, and becomes epizootic under general exciting causes.

It is a well known fact that the introduction of gangrenous matter, or of putrifying animal substance, in the subcutaneous cellular tissue of the horse, is sometimes followed by gangrene, and at others by the development of a tumour similar to that produced by the inoculation with charbon; consequent on which the animal dies in a few days. Similar accidents have resulted from the application of setons and the actual cautery.

Charbon may manifest itself without any other symptoms than those that follow its invasion, or it may be preceded by dulness, loss of appetite, thirst, great prostration of strength, and violent agitation of the flanks. These indications are followed by the appearance of the tumour, which is firmly adherent. The inflammation produced by the tumour renders the integument tense, and gangrene soon follows. Sometimes the almost imperceptible opening in the centre is mistaken for a core, and this may be the reason why it is not thrown out. At other times the skin ulcerates, and a greater or less number of openings are formed on the surface, from which escapes a blackish serosity, a true ichor, in which resides the infectious principle. This ichor sets up gangrenous action in every part it comes in contact with, from which result large ulcers with everted edges more or less thick and callous, red and

inflamed, but as often black and livid. These ulcers never furnish healthy pus, but discharge a bloody serosity more or less acrid, and which acts with more or less virulence on the surrounding parts. In the more simple cases, when no opening presents itself, resolution apparently takes place; but the tumour really progresses inwardly, and a metastasis of the inflammation follows, some organ becoming attacked, and the animal is in the greatest danger. In either case, when the disease has reached this point, a general reaction succeeds to the gangrene of the charbon; the pulse becomes small, accelerated, and wiry; the mucous membranes are injected, diarrhœa supervenes, the body becomes cold, the strength exhausted, and the patient succumbs to the violence of the attack. In some cases, when the tumours have had their seat in the region of the larynx or pharynx, they have given rise to symptoms of phrensy and hydrophobia previous to death.

The charbonous tumours present other characters which are not less remarkable. We have seen them small in animals still in good health, and then increase rapidly in size, attended with great pain in their centres. We have seen their circumference associated with much œdematous swelling, and crepitation present. We may also add, that, if an incision be made, a black liquid is discharged, which is nothing more than altered blood: afterwards, the centre of the tumour loses its elevated temperature, becomes cold, and insensible to pressure, while the circumference remains painful. The crepitation perceived on pressure exists in the subcutaneous cellular tissue, and indicates the presence of gas. Charbon, likewise, presents some peculiarities in its course and progress. The heat is not always proportionate to the intensity of the pain, which only exists when the tumour has reached a certain degree of development; but, as soon as it has acquired its due volume, both the pain and heat disappear, and sphacelus shews itself. The general symptoms follow a similar course. The charbonous tumour, having reached one-third or half its size, the morbid phenomena of inflammation and anxiety manifest themselves and reach their climax of intensity. It is then that we find the furious look, the haggard eye, the inflamed conjunctival membrane, and the strong and accelerated pulse; but these phenomena last only a short time,—they disappear as soon as the gangrene of the tumour has commenced: then the prostration of strength is complete,

the pulse becomes feeble and intermitting, and the animal sinks. Sometimes the vital powers seem to rally, but this is only a surer sign of speedy dissolution.

Charbon may affect different parts of the body, but there are particular regions where it is more generally met with, such as the head, and more especially the tongue, the neck, the front and sides of the thorax, the external parietes of the abdomen, the scrotum, the thighs, the shoulders, and the feet. When the head is attacked it becomes swollen to an enormous size, the tumefaction occasionally existing only on one side. When charbon shews itself in the mouth under the tongue, it is designated glosso-anthrax. It is seldom seen on the palate, but frequently on the larynx, where it produces the same form of disease. In the horse, and likewise among fowls, it attacks the eyes, and assumes the form of livid infiltration, which extends to the pituitary membrane, and even, it is said, to the brain. Not unfrequently in the sheep it fixes on one ear, and proceeds to the interior of the head. Charbon has also been observed to attack, within a short interval of time, both hind feet; the hoofs becoming detached, and the animal dying in two or three days after.

But, without stopping to examine these isolated facts, let us proceed to consider it in the different species of our domestic animals, with the exception, however, of sheep, to which a separate article will be devoted.

In the horse the tumour is always hot and painful. It may develop itself on any part of the external surface of the body, but is found more particularly under the tongue, constituting glossanthrax (on which we do not intend to enter now) on the chest, thighs, and feet. At the chest charbon shews itself by a tumour, which increases in size with so much rapidity as to acquire, in a few hours, a diameter of nine or ten inches. It is hot and painful at the onset; but gangrene soon sets in, when it becomes cold and insensible: the pulse becomes frequent—the respiration laborious—the eye wild—the strength quickly fails,—and death takes place in twenty-four hours. This variety is by the vulgar called *anticor*. At the thighs charbon presents the same characters, runs the same course, and is of the like duration as when it attacks the chest; its increase is almost recognizable by the eye. As soon as the tumour is established the thigh becomes of an enormous size, fever

supervenes, the vital and organic faculties seem to be annihilated, and the horse dies within a period of from twelve to twenty-four hours after the attack.

Of the feet, the hinder ones are almost alone liable to be attacked; however, I have once seen it at the coronet of the fore foot, but it was impossible to trace the progress of the disease, as the horse was dying when I was requested to attend: still the tumour had not acquired any great degree of development. Charbon has been observed to attack the two hind feet, and in a short time both hoofs have sloughed off, and the animal has died in the short space of from ten to twelve hours: sometimes he will live two or three days, enduring the most violent local pains, irritative fever, &c. In general these attacks are spontaneous. It is said that this disease will sometimes occur after punctures from nails in shoeing, &c. It is of frequent occurrence in hot countries, and horses often die of charbon after an attack of tetanus.

In ruminants the charbonous tumours are generally numerous, but small in size, and often without perforations: they also assume different shapes, and occupy particular situations.

Charbon in the genus Bos may develop itself on any part of the body, and is of two varieties, one of which affects principally the dorsal region, the external abdominal parietes, and the costal region; and the other, the shoulders, the dewlap, and chest. The tumours of the first variety are not always visible: tumefaction may be felt under the skin without raising it, and which penetrates into the muscles without presenting the appearance of tumours externally. Their existence, however, is easily detected by hardness and rotundity of form, and from a small depression being caused by pressure, also by crepitation of the skin. The name of charbon blanc, or white charbon, has been given to this variety of the disease.

The second variety, ably described by Chabert, appears in the shape of very small tumours, which make such progress that, in the space of half an hour, they often attain the size of the human head. They extend in an equally rapid degree in all directions, favoured by the loose cellular tissue, under the belly, along the spine, neck, and throat. The patient now becomes stiff all over; the arteries are full and distended, without action *per se*; the beatings of the heart are violent, not only to the sight and touch, but

they may be heard at some distance. As soon as the animal falls, he dies.

Without speaking of that horrid pest the typhous charbon, which, as it were, at one single blow strikes whole herds of cattle dead, there is another variety of the same disease which announces itself by the appearance of livid or blackish spots. These seem to be only in the skin, which they raise and detach, causing it to crackle: gangrene quickly supervenes underneath, and the disease is equally fatal, though it progresses with less rapidity.

In swine, charbon is generally considered not to present any marked difference with the same disease in the ox, except when it is situated in the region of the neck, where it offers peculiarities worthy of our attention. Its seat is at the side of the neck near the head. At this part there is first seen a black spot on the skin, about an inch and a half in diameter; the bristles covering it are stiff and erect, and their bulbs seem to be shortened:—but we intend to devote an article to this disease in swine.

Among fowls, charbon presents itself by gangrenous spots and tumours on the digital region. Some geese which, according to Chabert, were attacked in the commune of Maralles, near Montereau, in 1730, and perished in great numbers, presented the following symptoms:—fever—general prostration of strength—loss of appetite—claudication—irregularity in the motion of the head—setting up of the back—and extreme suffering in the extremities. Shortly after the beak became black, and gangrene manifested itself at the tumefaction of the web between the toes, and colicky diarrhœa preceded death only a short time.

The causes of this epizootic were referred to the excessive heat and dryness of the season, the want of cleanliness, and a vitiated atmosphere; also to impregnated water falling from roofs of houses, and the fetidness of that of the stagnant pools to which these birds had access; and, lastly, to the altered state of the vegetables and grains on which they were fed, arising from the peculiarities of the season.

The anatomical lesions are of two sorts,—local and sympathetic. One can easily detect the first by seeing the tumours covered with a blackened eschar, around which the inflammation had not been able to form a circle, which would have tended to separate the living from the dead parts, owing to the rapid progress of the dis-

ease. The cellular tissue surrounding the tumours, although not gangrenous, is gorged with a sero-gelatinous fluid mixed with blood, and oftentimes is distended with a fetid gas, the result of putrefaction going on in the parts.

The infiltration of serum extends in proportion to the depth of the tumour; and the blood, being of a dark black colour, communicates this tinge to the subjacent muscles. The cellular tissue also presents, here and there, spots of ecchymosis.

The sympathetic lesions, according to Chabert, are extensive. He has found them in the cranial, thoracic, and abdominal cavities, and also in the alimentary tube from the mouth to the anus. We have several times, when conducting an autopsia cadaveris, met with traces of this peculiar inflammation in the gastro-intestinal mucous membrane; and the same has also been observed at the veterinary school at Lyons, according to statements in the *Comptes Rendu*.

Much valuable time would be lost if we were only to direct our attention to calm the inflammatory indications by the ordinary remedies, such as venesection, emollients externally applied, and other antiphlogistics. The rapid progress of the disease demands the most energetic measures, but unfortunately we are obliged to confess that the best devised treatment is, in the majority of cases, altogether useless. It is true that the veterinary surgeon is generally called in too late to make a trial of means that might otherwise be adopted, such as boiling oil, setons—topical agents of divers kind, as caustics, vesicatories, points made with the red hot iron or in lines, so as to confine the tumour. Scarifications have proved altogether insufficient. The extirpation of the tumour by the actual cautery remains to be tried after excision, either as an effectual cure or an auxiliary; but it should be adopted at once. Incisions made into the tumour have the effect of relieving at once the congestion which keeps up irritation, and of facilitating the evacuation of the imprisoned fluids, and, at the same time, rendering the topical applications more effective. The incisions must be deep and in a crucial form; the wound should then be strongly pressed, in order to evacuate the contents of the tumour. This mode of incision, however, offers less chance of success than the extirpation of the tumour, and it is only practised when the extent of the charbonous deposit does not allow of

its extirpation without danger. But, before we proceed farther, we feel it necessary to give some important advice to the operator—that is, to have his hands well protected with gloves whenever he is obliged to touch the tumours, either when about to explore or to operate on them. This precaution we have never neglected, and have never met with any accident.

The excision of the tumours must be complete, and in a circular or elliptic form. In extirpating them it is necessary to extend the incisions beyond the limits of the tumours themselves into the healthy tissues. But whichever of the two processes is resorted to, it will frequently be without effect unless seconded by the application of the actual cautery, followed by suitable topical dressings.

The cautery must be applied without fear, so as to destroy all the affected tissues, and penetrate into the healthy ones. The best shape or form of the cautery is an ovoid of considerable thickness, heated to a white heat. The intention is to produce a new eschar, and consequently a wound of a different and healthy nature. This result, it may easily be conceived, could not be obtained in enormous charbonous tumours, unless the use of the cautery is preceded by that of the scalpel.

The actual cautery is also useful as an auxiliary to penetrate into sinuses which cannot be reached by the scalpel, for instance, when openings exist in the tumour, as is frequently the case. The pointed cautery must then be repeatedly used, and heated every time to a white heat, taking care to introduce it to the bottom of the sinus, and in a direction so as to make a pendent orifice, to allow of the evacuation of the fluids.

Among the topical agents to be applied after the operation, boiling vinegar, the essential oil of turpentine or of lavender, blistering ointment, liniment of ammonia, with ammoniacal frictions, camphorated tincture of aloes, &c. have been particularly recommended; but none of these are preferable to the chloride of soda or lime of M. Labarraque, used either pure or diluted with a certain quantity of water. MM. Bouley, Roupp, sen., Panon, and Desbassyns, have been most successful in the application of it; the first in cases of charbon consequent on the inconsiderate introduction of setons during an epizootic raging among horses, the others in cases of pure charbon. M. Bouley directed injections of the chloride to be used every hour after the cautery had been

applied, and the parts to be dressed immediately after with dry tow; the good effect of which was that the progress of the disease was checked, and healthy suppuration followed on the third or fourth day, when all danger disappeared. M. Roupp had a charbonous affection to combat in a mare, and had reason to fear a fatal termination: he concentrated eight ounces of chlorinated lime in water, which was injected hourly into the wound after the operation by extirpation, and the amendment was sudden and decided. In the Isle of Bourbon, where the charbon makes frightful ravages amongst the mules, M. Desbassyns administered the concentrated chloruret three times a-day, the dose being a tea-spoonful each time diluted with a pint of water. The progress of the disease was thereby arrested, and the alarming symptoms disappeared in three or four days. Although the effect of the chloruret of lime cannot be denied in these cases, we participate without reserve in the opinion of M. Bouley, that this agent alone is not sufficient, but it must be considered merely as an excellent auxiliary; of which the foregoing facts would seem to authorise the conclusion. Thus, after the extirpation and the judicious cauterization of the tumours, instead of filling the wound with less effectual topical agents, it is more advantageous to put every part in contact with the chloruret, either pure or diluted with water, in the form of injection or lotion, or by dipping pledgets of tow in it and applying them to the surface of the wound, according to the exigency of the case. When the newly-formed eschars come off, the surface of the wound will be of a vermilion colour, and healthy suppuration soon after established; this forms the basis of a good cicatrization. When these favourable signs are present, it will only be requisite to dress the wound with diluted alcohol, in which aloes and camphor may be dissolved. If, on the contrary, the chloruret is continued, it should be largely diluted in proportion as the cure progresses to completion, until the dressing consists of dry tow only.

It sometimes occurs that, after the extirpation of the tumours, fresh ones appear; but in this case the same treatment must be pursued, and the new comers excised and treated in every respect in the same manner as the former ones. Frequently, too, the excision of the charbonous mass is followed by a great deal of œdematous tumefaction, which extends more or less. It will be necessary in such cases to penetrate its substance with the

actual cautery, and apply the same dressing as already recommended. We do not deny that these active means are likely to be productive of considerable local inflammation, and a general excitement of the system more or less powerful, particularly if the situation of the tumour is in a tender part, or of great size, and the operation has necessarily caused great loss of substance; but in these desperate cases is it not better to attempt the cure, though the result may be uncertain, than to abandon the patient to certain death? No treatment, however, should be adopted which is likely to terminate fatally in a few hours, and perhaps even before the departure of the veterinary surgeon; but if the disease is likely to last two or three days, judicious internal remedies should be resorted to, conjoined with topical remedies, though at the risk of failure. The most important point is to decide on the circumstances which either favour or militate against the employment of remedies. Charbon never confines its effects to the tissues in which it is located, whether it be extensive or deep-seated, has arisen spontaneously or is the result of contagion, or is produced by the inoculation of a septic agent; but it invariably gives rise to general disease, which presents itself under two different forms; namely, indications of irritation and inflammation of the principal organs, and general symptoms of asthenia. We will not attempt to explain the causes of this marked difference in the effects of one and the same disease, but we will take advantage of the knowledge of the fact to establish precepts for a general treatment of the malady. If the inflammatory symptoms, either local or general, run high, it is to the antiphlogistic treatment that recourse must be had. A restricted diet, mucilaginous and acidulated drinks, nitre, the vapour bath, enemas either simple or medicated, &c., these are the general elements of this treatment. We except, however, bloodletting, which experience teaches us has always been contra-indicated, and in many instances it has proved fatal. We find this also holds good in many, indeed most, epizootic diseases, and even in the contagious typhus. If, on the contrary, the disease is attended with but little excitement of the system, if there is indication of its influence on the vital organs being rather more of a depressing than irritating nature, then antiseptics should be employed; that is to say, medicines possessing stimulating properties, such as camphor, gentian, sulphate of quinine, given in

infusions of aromatic plants, or in strong beef tea, cider, or wine. If, on the other hand, it is found that the local and sympathetic phenomena have the same intensity, then the therapeutic treatment should be mixed.

We have but little to add relative to the treatment of charbon when it attacks particular situations. When it is at the anterior part of the thorax, ablation of the tumour will be the best plan that can be adopted. If in the mouth, when the tumour is situated between the jaws, it is necessary to make the incision below and externally, and in the direction of the tumour, and cauterise it with some mineral acid: the dressing to be made use of is the same as in the other cases, namely, the chloruret, either in the form of injection, or of pledgets of tow dipped in the solution. The same process is to be followed in cases where the tumour is situated at the palate. If the bones be affected, the best plan is to facilitate their exfoliation by the aid of acids.

Charbon, when situated on the exterior of the head, must be deeply scarified in a transverse direction, and it will sometimes be necessary to extirpate the tumour in cases where the tissues are already much involved. It is always good practice to amputate the ear, and to extract the eye, when affected with charbon, especially if there be no other means of arresting the progress of the gangrene. At the thigh, charbon does not call for any particular treatment, except when in the shape of a tumefied mass on the inside of the limb; in which case the cauterization must be deep and extensive, and afterwards the parts are to be dressed with solutions, the first consisting of the undiluted chloruret of lime or soda, and the second more or less diluted, these being applied several times in the day. Charbon within the hoof requires that part of the hoof to be removed where percussion will lead to the detection of the seat of it, and which the blackened tissue, after the hoof is taken away, will confirm. If the frog is the seat of the disease, which occurs frequently in the horse and mule, no time should be lost in removing all the horny substance even beyond the part affected; after which the whole of the affected frog should be detached, the parts freely cauterized with the mineral acids, and the dressings subsequently used should consist of the chlorurets, and the bandages be so applied as to give a certain degree of pressure to the parts. Charbon situated at the

digital region of fowls and geese must be either scarified or extirpated, according to the case, and the parts afterwards soaked in diluted chloruret, or pledgets of tow saturated with it applied.

We cannot conclude without recommending the greatest caution to the veterinary attendant who may have to treat or operate in cases of charbon. The slightest wound with the scalpel during the act of incision, or when exploring the tumour with excoriated hands, or only when they are in a state of perspiration, may inoculate this dreadful poison. The hands should be protected by strong gloves made of some substance that does not allow the ichorous fluids to penetrate through them to the skin. Many have fallen victims from not having taken this necessary precaution, and facts are not wanting to substantiate what is here advanced, were it necessary to adduce them; but we will content ourselves with one, that of the unfortunate Narcisse Girard, the hope of veterinary science, who died in the prime of life, from having made a post-mortem examination of a dead horse affected with charbon.

The following article is from the *Courier des Ardennes*, of the 21st of September 1837:—About a month since, a dreadful disease carried on its ravages in the Departement de la haute Vienne, de la Creuse et de la Corrèze. The mortality is almost general, particularly on the borders of streams and marshy situations. It suddenly seizes animals which up to the time have not shewn the least symptom of illness; and some seem to succumb under their loads. This is principally the case with millers' horses; others fall down at plough, or in the wagons; but the greater number die in the stables, where they are found in the morning black and swollen. We may add, that all the dogs that have fed on the flesh of these dead animals have perished in a short time afterwards, and even several wolves have been found dead in the neighbourhood, which were supposed to have eaten of the carcasses.

This form of charbon shews itself by swelling of the limbs, or other parts of the body; the animals cross their legs, and can hardly be made to move; the extremities become stiff; the coat stares; the belly is tympanitic, and the swelling quickly extends to different parts of the body. If the tumours are cut with a scalpel

or bistoury, a sort of vapour or mephitic gas escapes from the incision with considerable noise, similar to that of a fusee burning; the eyes lose their lustre, the sight is gone, the animal reels, and suddenly falls to rise no more. After death the body continues to swell until a state of perfect putrefaction is set up, which occurs almost immediately. No time, therefore, should be lost in removing the dead bodies, as great danger would arise from the least neglect in this particular, and they should be buried as deep as possible.

On Pleuro-pneumonia Epizootica in Cattle.

By P. Verheyen, *Professor at the Veterinary School, Brussels.*

[Concluded from page 225.]

The contagious or non-contagious Nature of the Disease considered.

MM. Leroi and Rodet are of opinion that in its milder forms it is not contagious, but that it becomes so when the disease passes into the gangrenous stage. At the time these remarks were made, the epizootic had not been studied sufficiently, so as to ascertain the fact that it never terminates in gangrene. Nevertheless Brugnone and Toggia had already declared themselves in favour of contagion, grounding their opinion on the facts stated by the German veterinary surgeons. Laurin observed the disease in Lombardy, and although he declared himself a contagionist, he at the same time opposed the opinion of Leroi.

When the pleuro-pneumonia broke out in Holland, Vanispen, President of the Committee of Agriculture, assisted by the veterinary surgeons of Groeningen and Mowen, instituted an inquiry with a view to ascertain the origin of the disease. Public rumours accused Vanderbosh, a distiller, of having bought some oxen that were taken out of the pastures of Mehr and Niel, in the Prussian territory, on the frontiers of Holland, where a great many cattle had fallen victims to the disease. The inquiries confirmed the fact of the importation of the oxen, and also the first appearance of the disease in his stables. In the month of November 1833, the pleuro-pneumonia attacked the cattle of J. Vandepaverd, at Leuth, parish of Gueldre, near the Prussian

frontier, while they were in the pastures. The first case occurred in a milch cow;—a week after a second was attacked: both died. It then disappeared for six weeks, after which another cow was attacked. The number diseased now increased to thirty, of which twenty-six died, and the disease continued in the stable the whole of the winter; and at the time his cattle was sent into the pastures, on the 11th of June, two cows were still labouring under it. About that period, Dirk Hendricks, the nearest neighbour to Vandepaverd, lost six beasts. From thence the disease extended to Panerden, and appeared among the cattle of Dirk Vandesand. From thence it reached a farm about a mile distant; after which it broke out among the stock of Willem Vandesand, brother to the former, whom he had often visited, and also assisted in administering medicines to the diseased animals.

In the beginning of May the epizootic appeared at Groesse, in the parish of Duiven. It first broke out in the stables of Tendringen, where it attacked a cow which had been bought in the spring. The disease successively invaded several parishes. On following the progress of the malady, it would be found to attack an animal suspected to be brought from an infected place, then a herd of healthy cattle, but which had been in contact with an infected herd of a neighbouring village while at pasture.

The pleuro-pneumonia epizootica prevailed for two whole years in Gueldre, extending gradually its ravages from farm to farm, and from village to village. In the month of December 1835, and of January 1836, it suddenly invaded Middle Holland, and appeared in the parishes of Lier, Maisland, Maeslais, Naelwyk, Groeneveld, S'gravesande, the Isle of Rozenburg, and afterwards the whole of the province became infected.

Did the general causes of epizootics give birth to the pleuro-pneumonia in Holland? If so, why was it confined from November 1833 to June the following year to the cattle of John Vandepaverd? We find it extending as soon as the pasture lands favoured the communication of animals. Everywhere the disease breaks out, and you may easily trace its march. It is confined for two years to one province only; it then approaches another province extremely rich in cattle, invades it, and causes a frightful mortality. But how did the disease get to Holland? If we consult the *General Veterinäre Bericht des Königlichen Rhein*

Medecinal Collegii über die Jahre 1829-30-31-32, we find that for a long time it had prevailed in Prussia, on the frontiers of the Netherlands; and that during the above named years it had not discontinued its ravages in the neighbourhood of Cologne, Coblentz, Bonn, Treves, Bittburg, Dhaun, Adenau, Zell, and several other districts.

M. Vanderwattyn, who traced the origin and progress of the disease in Flanders with considerable attention, and who has been kind enough to communicate to us the result of his observations, attributes the origin of it in his province to a herd of horned cattle brought from the Campine, where the disease had manifested itself in several localities in 1828. At a public auction at Shepdale, one of the suburbs of Bruges, in 1828, the Sieur Bulcke, cultivator at Ramsu, Cappelle, and two gardeners of Bruges, made purchases; the first of three heifers, the latter of a milch cow each. A short time after the introduction of the heifers into the pasture, Bulcke perceived the appearance of the pleuro-pneumonia among his stock. The three heifers were its first victims, and the two milch cows purchased by the gardeners of Bruges died of the same affection, having been in their possession only a very short time.

Such were the circumstances, observes M. Vanderwattyn, which preceded and accompanied the first cases of the pleuro-pneumonia epizootica in Flanders. Some months after, in 1829, the disease broke out among the stock of the cultivators Pentelon of Ramscappelle, Malefeson of Dudzeele, and J. Desmet of Oostkerke, all neighbours of the cultivator Bulcke: and in this manner it proceeded from village to village in rotation as they were more or less distant from the one where it first manifested itself.

In 1832 the pleuro-pneumonia broke out among the stock of H. Dyonghe, at Coolkerke. This farmer having lost several cows through it, bought a milch cow apparently perfectly healthy to supply milk to his household. About from the tenth to the eleventh day after her admission she exhibited all the symptoms of pleuro-pneumonia, of which she died.

Two sucking calves were bought by Vandevelde, cultivator at Oudebourg, and put into his stables during the prevalence of the pleuro-pneumonia: they also both died of the same complaint. J. Van Isacker, cultivator at Cortemark, found the pleuro-pneu-

monia breaking out among his stock after he had been appointed to value a neighbour's stock which was affected with the disease. This man was very careful in the duties of his office, and never valued a beast without having minutely examined it, and he used to attend his own cattle.

The burgomaster, Mabesoone, of Oostkerke, having, without his knowledge, admitted to pasture with his own a herd which was suspected, the pleuro-pneumonia, after having attacked them, spread to other cattle, among which it committed great havoc.

During the summer of 1834, the live stock of the deceased widow Dewitte, of Oudelappelle, in the district of Dixmusde, were sold by public auction. Before the sale some of them had been carried off by the epizootic, and others were suspected to be diseased. In November the same year, and in April 1835, M. Vandewattyne was sent to Steenkerke, district of Furnes, to the cultivators Loones and Deren: all the information obtained convinced him that the epizootic had its origin from the cattle bought at the abovenamed sale.

The cow bought by Loones still lived, and in the opinion of the proprietor was healthy; but M. Vandewattyne pronounced her infected, and his prognosis was soon confirmed.

All the cows sold at the sale died of the epizootic.

The pleuro-pneumonia appeared for the first time among the cattle of J. Gillen, cultivator at Uyskirke, after the introduction among them of a lean cow brought from an infected herd in the neighbourhood of Ostend. During the prevalence of the disease among the cattle of Gelliaert, cultivator at Etteghem, he bought a healthy cow coming from a district where the disease was unknown. As soon as she was brought in contact with an infected beast she contracted the same disease, and died. In the month of September 1840 the epizootic broke out among the herds of Calan, cultivator, at West Cappelle, which were at pasture in the parish of St. Anne (Holland): two of the beasts belonged to another individual, who, on being informed of it, had them removed, and, thinking them free from the infection, sent them into the common pasture at Knocke, which contained at the time above 100 head of cattle, of which 67 belonged to Landschoot. This was the origin of the epizootic at Knocke. The two cows abovementioned were its first victims; the majority of the herd of Landschoot perished.

Some of the proprietors of cattle had them removed from the pasturage on the first outbreak, but it was too late: they communicated the disease to those of other cultivators; and the number of animals attacked by the disease since September 1840 to February 1842, in this small locality, amounted to 156. In the month of October 1840 we went to see a cow in the stables of G. Hardies, cowkeeper, rue du Nord, Bruxelles. The cough was characteristic, and this, in addition to the other symptoms, enabled us to recognise the pleuro-pneumonia epizootica. This cow had been bought at the market of Malines a short time before; she had often been heard to cough. He had two other cows which had been eighteen months in his stable, and never during that time ailed any thing. We advised him to separate them from the diseased cow, which, however, was not attended to. At the end of fourteen days the affected cow was in perfect convalescence; but the one next to her began to cough; eight days after the other was attacked, and the pleuro-pneumonia carried them both off. At the veterinary congress held at Mayence in 1841, the question of contagion was agitated. All the members, twenty-three in number, were in favour of its being so. They admitted, moreover, that at an advanced period of the disease it was not only transmitted by immediate but also by mediate contact; that the pulmonary exhalations were more virulent than the cutaneous perspiration; that in certain cases the disease might shew itself spontaneously, but that its propagation must be attributed to contagion; that by its slow progress it existed for years in one district or locality, solely through its contagious nature, even although the hygeian of the cattle had been improved and every influential cause removed; that the infected atmosphere would not only spread it in the same stable, but would also penetrate into the neighbouring stables when not too far removed, or when they communicated together indirectly. Dr. Vix adds that the infected atmosphere, according to his experience, only extends to neighbouring stables at a distance of five feet. Every day's observation confirms the fact that the expired air and the mucus from the bronchi are the principal vehicles of the contagious virus, which is miasmatic, but which does not exert its influence beyond a circumscribed atmosphere surrounding the patient. The first manifestation of its effects is on the pulmonary vessels. Its progress is at first slow, and the

period of its full development is of an indeterminate period; it may be several weeks.

The virus seems also to adhere to contiguous bodies, by which the seeds of the infection are carried from stable to stable. The observation of Tscheulin, to which we may add another made in Holland, and a third communicated by Vandewattyn, tend to substantiate this mode of propagation. The experiments of Rudolphi and Dieterichs prove that the milk of cows affected with pleuro-pneumonia is not in the least injurious to healthy cattle.

Up to the present time we have no proof of any bad effect being produced on mankind either by the use of the milk or the flesh of diseased cattle. Huzard says that the meat of cattle affected by the pleuro-pneumonia has been constantly eaten in Paris, and that no disease which might be reasonably attributed to its use has been known to prevail. Haveman, Bojanus, Dieterichs, Hoffaker, and Waginfeld, likewise declare that the flesh is wholesome. Dr. Albert has communicated some facts which tend to a belief that at an advanced period of the disease, above all, when accompanied with fever of a typhoid character, the flesh of pneumonic cattle may not be used with impunity as human food: we also are of opinion that in those cases its use should not be permitted; but when the affection is at the commencement, then there is no reason why the affected cattle should not be sold to the butchers. This we know is frequently the case; and many proprietors of cattle, convinced of the little chance of cure, sell their stock on the first appearance of the disease.

Measures of the Sanitary Police.

We will contend that the disease has not developed itself spontaneously in our country; but it is also certain that none of the causes which have been assigned as giving birth to this affection will bear close investigation. They are, moreover, so contradictory, that there would not be much exaggeration in saying with Wagenfeld, that all obnoxious influences, either external or internal, which in general would have engendered a morbid action, have been brought in a certain degree to bear on the etiology of pleuro-pneumonia. That pleuro-pneumonia epizootica is contagious,

the above quoted cases are, in our opinion, a sufficient proof,—the government also considers it as such; in consequence of which it has assigned an indemnity from the agricultural funds to those whose cattle are slaughtered after competent authority has examined them, so as to prevent the spreading of the disease. But, to what purpose is this partial slaughtering, if no barriers are opposed to the propagation of the infection? If the virus which gives birth to the disease be not destroyed, some diseased animals at great expense are destroyed, it is true, but the principle of the evil is left untouched; and, what is more, every individual is at liberty to propagate the disease, since no penalty is inflicted on those who sell cattle which are suspected. As soon as the disease prevails in a herd, and has committed some ravages, it is no extraordinary thing for the proprietor to dispose of the remainder at the next and nearest fair, thereby spreading the disease in all directions. Being altogether ignorant of the causes which engender pleuro-pneumonia epizootica, we will regard it as a contagious disease *à priori;* that is, a disease which has been introduced from without, which exists and maintains itself only by or through contagion: it is under this impression that we will examine those sanitary measures which are applicable to it.

1st. Every buyer and drover of cattle shall be obliged to conform to Article 459 et seq. of the Code Penal, which enacts that, as soon as the disease shall appear among the herds, they shall, without delay, inform the parish authorities of the fact.

Art. 2. S. D., of the *Arretté Royal*, 19th April, purposely calls attention to this act, and makes it wisely an indispensable condition to obtain the indemnity from the agricultural funds. But what is the conduct of the authorities after they have received this declaration? Do they take any measures to prevent the contagion extending? Do they know the duties they have to perform? Generally the proprietors act according to the advice of the veterinary surgeon; but in cases where empirics and quacks have possessed themselves of the confidence of the agriculturist, this law is violated with impunity. It would therefore be necessary to have the means to prosecute these violators of the law.

2d. The moment pleuro-pneumonia has shewn itself in a stable, the parish authorities, in concert with the government veterinary

surgeon*, will take every precaution for the perfect sequestration of the diseased animals from those which are as yet healthy, and see that they are not attended by the same individuals. That localities where they have sojourned be completely disinfected; however, those animals which we have designated as healthy must be considered as suspected, and consequently they must be prohibited from passing the limits of their domain; the public pasture, watering-troughs, &c. must also be interdicted for at least eight weeks after the death or cure of the last case.

3d. A strict watch must be kept that no beast coming from an infected stable or pasture be clandestinely brought to a fair or market, and sold. To carry this into effect, it is necessary to know the exact number of cattle, for it is only by this means that this important measure can be enforced. Another most important feature consists in demanding a bill of health with every beast brought into a market or fair, to be delivered by the veterinary surgeon, and countersigned by a member of the municipality, and to inflict a punishment on all those who bring animals without this certificate. Auscultation and percussion of the chest in reference to the diagnosis of pleuro-pneumonia, even in the first stage of the disease, offer to the veterinary surgeon certain signs which enable him to deliver these certificates. We consider this as a most efficacious measure, and, by adopting it, we should only imitate that which is practised in many of the German states.

4th. It would also be of the greatest utility to induce the proprietors of cattle to submit to a quarantine of eight weeks before letting their cattle freely communicate with each other, in particular those which have been recently bought. These measures are neither complicated nor difficult of execution; they only require a will to enforce them, and we are certain they would be crowned with success.

There remains still one question to notice:—What is to be done with the diseased animals that have been sequestered? Are they to be placed under medical treatment, or slaughtered immediately on the appearance of the first symptoms?

We know all the objections that have been raised against sys-

* In every district a veterinary surgeon is appointed, and paid by government, to prevent empiricism, and watch and report contagious disorders and epizootics.

tematic slaughtering, so as to extirpate contagious typhus, and we are far from comparing it with pleuro-pneumonia, which is only transmitted by a virus more fixed than volatile, and the influence of which is confined to a very circumscribed atmosphere surrounding the diseased animal. Notwithstanding, several powerful motives induce us to propose not the general slaughter of the animals, for this appears terrible, but to send to the butcher all animals which are attacked with the first symptoms of the disease.

Means of eradicating the Disease.

If we take a retrospective view of the different modes of treatment that have been advocated for pleuro-pneumonia, and consider the little success, or rather the non-success, by which they have been attended, we must acknowledge that we are but little advanced in the therapeutics of this disease. And how could it be otherwise? The period of development is generally very long. Already extensive, deep, and from their nature incurable, lesions exist in organs most essential to life, and that before the system becomes excited, so that it may almost be considered passive: indeed, the genus bovis will for a long time resist the influence of a disease which tends to destroy the very sources of its existence. Thus, to the common observer, suspected cattle, exhibiting externally all the signs of perfect health, and inspiring them with the greatest security, may offer very little chance of cure to the veterinary surgeon who explores the organs of respiration attentively. And proprietors consult professional men only when morbid phenomena indicate that their cattle are really diseased, and what can then be done beyond symptomatic treatment? A return to health is in some cases effected, but a radical cure seldom. Still this apparent return to health is often only the passing from the acute to the chronic form of the disease. The animal sustains an organic lesion of a serious nature; it remains in a state of emaciation, or is unthrifty: marasmus supervenes, and pulmonary phthisis at length puts an end to its miserable existence. In this case, it is a loss rather than a source of profit to the proprietor; and it is not even certain whether even in this stage the animal does not possess the power of disengaging the principle of contagion, and thus infect other animals.

For every diseased beast, arrived at the stage of incurability (and these constitute the greatest number), the owner receives out of the agricultural funds an indemnity equivalent to one-third of the value of the healthy animal; besides which, he is allowed to sell the hide. Estimating the value of each animal at 150 francs, the indemnity would be 50 francs; and adding 20 francs for the hide, will amount to nearly one-half its real value. If, however, the animal is sold to the butcher, and supposing the meat to be of inferior quality, he will have a greater produce, and the poorer classes of the community will be enabled to purchase a nutritious aliment, which the high price of meat generally puts out of their reach. The government, on the other hand, will be enabled, at a moderate expense, to indemnify the agriculturist for an enormous loss, and thus we shall much sooner and surer succeed in extirpating this scourge from the country, which it has ravaged for the last fifteen years: this is not a consideration which should be rejected without being duly considered. A few examples in support of this proposition:—

The pleuro-pneumonia manifested itself, for the first time, in the spring of 1833, at Renesse, in the island of Schowen (Zealand), and seven cows died before the competent authorities were informed of it. By the slaughter of all the suspected animals the propagation of the disease was prevented. In the month of October, in the same year, it manifested itself at Crabbendyke: the first five animals attacked were slaughtered, and the evil was crushed in its birth.

In the cantons of Vaud and Friburg the slaughtering was also had recourse to for mastering the pleuro-pneumonia. We will close this subject by an extract of the report of Dr. Laharpe, addressed to the Board of Health of the Canton:—

In the month of February the disease manifested itself in the village of Villars-le-Comte, in the environs of Moudon. It was not recognised immediately, and no report was made to the authorities, because it attacked cattle one after another, and shewed itself only after several weeks. A great number fell a sacrifice; and the slaughterer found, using his own expression, that they were affected with inflammation of the chest. A cow, sold at Denezy, a neighbouring village, conveyed the germ of the disease, of which she died: since that the pleuro-pneumonia

existed at Denezy without interruption, making, however, but slow progress, transmitting itself from individual to individual, and passing from one stable to the next. Denezy had already lost a vast number of animals, and, to put an end to the calamity, the authorities saw no other means than the general slaughtering of all the cattle contained in the locality.

The village of Villars-le-Comte was more fortunate, for, although cattle were here first attacked, since the month of May the disease has disappeared without any return. Probably the poor inhabitants of this district, possessing only one cow each, promptly disposed of it on the first signs of disease. It was not possible to trace the progress of the epizootic. It was supposed that it was brought from the canton of the Vallais, where, as in France, it frequently prevails.

A cow from Denezy was sold in the month of May at the fair of Romond, canton of Friburg; an inhabitant bought it, and sent into the pastures on the Alps for the summer: it arrived in the month of June in a meadow called the Great Tzermont, where it became ill, and died. This event awakened no suspicion, but in the month of July other cows of the same herd, which numbered about eighty head of cattle, became diseased, and many died. The cases becoming more numerous, and the mortality increasing, about the month of August the authorities were informed of it. The first veterinary surgeon employed did not know the disease; but others were consulted, who recognised the pleuro-pneumonia, and declared it contagious, and advised, as the only means of safety, the destruction of the whole herd. The mountain fortunately was isolated, and a hope was entertained of extirpating the epizootic by the sacrifice of this herd, but before this two head of cattle had left the Alps. A bull had been sent in the month of July to a neighbouring mountain, and a heifer had been fetched away a few days before the order arrived. The bull was shortly taken ill, and communicated the disease to a herd composed of about forty cattle, with which he was at the time. This herd was also condemned and destroyed, causing altogether a loss of 140 head of cattle. On the autopsia a great number of them were found affected with the disease, although during life they had exhibited all the signs of perfect health. Enquiries were now made about the heifer, and it was found in a stable with six other

horned cattle. The Board of Health of Friburg took this opportunity to assure itself of the contagious nature of the disease. The stable in which the heifer had been put was isolated, and access to it easily prevented; a watchman was set over it, who had the sole care of the cattle it contained, and no one was allowed to approach this man, and he often purified himself. After a few weeks the cow which stood next to the heifer became diseased, and seemed to be attacked with pleuro-pneumonia, and the heifer very soon died of this affection. The remainder contained in the stable were now ordered to be killed. On the autopsia it was found that the animal next to the first diseased was much affected with the same disease; the next to it less, and those farther removed still less—finally, the two last were found to be healthy. One of the diseased cows was six months in calf, and the lungs of the fœtus shewed already traces of alteration of structure; and from this time the canton of Friburg was considered free from the disease, and the restrictions were removed.

In the month of November a case of pleuro-pneumonia occurred at Balle, at the foot of the infected mountain. The authorities being informed of it, ordered three other cows in the same stable to be destroyed, two of which were already infected. These four cows were lodged in a stable next to the one in which the heifer passed the night on its descent from the mountain. Since this time no other case has occurred in the Canton of Friburg, and the disease has been confined to Denezy. Contagion was the alone cause of pleuro-pneumonia in these two cantons: it did not prevail epizootically, as in Savoy and France, where cattle badly fed, and in poor condition, are often attacked.

We would not wish to see the slaughtering carried on so extensively as this; but we persist in the opinion that the means the easiest of adoption and the most advantageous to the interest of the government, and also the proprietors, would be to send to the butchers all cattle which exhibit the first symptoms of the disease. This would be more efficacious than the partial slaughtering, and the allowing of free communication, without control, of the infected animals with each other.

COMMUNICATIONS AND EXTRACTS.

To the Editors of "THE VETERINARY RECORD."

Edinburgh, July 15th, 1845.

Sirs,—THE report of the Council of the Royal College of Veterinary Surgeons, published in your last number, contains a statement in reference to the Chemistry Class of the Veterinary College, Edinburgh, so singularly unjust and inaccurate, that I trust you will allow me space enough to point out its unfairness. At page 301, reference is made to the Highland Agricultural Society of Scotland "giving a silver medal to the pupil who shall pass the best examination in Chemistry; *and this too, be it remembered, in the face of a protest from the Professor of the School they patronize and protect against such a subject being taught in his class.*" I have marked with italics the passage I wish to comment upon. As I was the party by whom the pupils of the Edinburgh Veterinary College were instructed in Chemistry, and as I am likewise a member of the Highland Agricultural Society, I am in the best condition to say whether it was at the instance of that Society or of Professor Dick that the veterinary pupils were taught chemistry: and I beg to state emphatically, "that it is to Mr. Dick, and to him alone, that the merit of adding that branch of science to the curriculum of the Edinburgh College is owing. The following are the exact facts of the case:—

Last summer (1844), having been informed that Professor Dick intended to have his pupils taught chemistry, I had several conversations with him on the subject. He informed me that for years he had wished to have them instructed in that science, but that he had partly been dissuaded from it by persons to whose judgment on this subject he was willing to defer; partly had been prevented by difficulties which he could not overcome. He added, that he was resolved to let nothing stand in the way of his wishes being fulfilled during the approaching session (1844-45), and that he had made arrangements with Dr. Fyfe to have his pupils taught by him. Before the session commenced, however, Dr.

Fyfe was elected Professor of Chemistry in King's College, Aberdeen, and Mr. Dick's views in regard to him were frustrated. I undertook, in consequence to instruct the pupils of the Edinburgh Veterinary College in Chemistry, and they attended a special course of lectures addressed solely to themselves, during last winter. The arrangement was between Mr. Dick and me, not between me and the Highland Society. The latter body were not informed of its having taken place till it was concluded between us, and took part in the matter no further than to express their satisfaction at learning that their Professor was securing for his pupils a knowledge of Chemistry. It was by Mr. Dick I was engaged to lecture: to him alone I was responsible for the mode in which I taught the class; and he was the only party on whom I had any claim as to remuneration. From these circumstances, the reader can judge how ludicrously inaccurate, and altogether unjust, the statement in the Report of the Royal College of Veterinary Surgeons is, which represents Mr. Dick as having protested against his pupils being taught Chemistry, the very branch in which he had taken the greatest pains to have them instructed. Mr. Dick's protest, which I heard, had reference to a different matter. He protested as a matter of right (whether justly or not I do not say) against his pupils being examined in chemistry more fully than on previous years; and against ignorance of that science, as a special branch of study, being made the ground of rejecting candidates otherwise well qualified. The latter part of the protest I think was quite reasonable (although the view which is taken of that has nothing to do with the question before us) in reference to young men, the great majority of whom had attended only one course of Lectures on Chemistry.

I beg further to mention, that the Highland Society has already declined to accept the compliment which the Council of the Royal College of Veterinary Surgeons sought to pay it at the expense of Professor Dick. At a Meeting of that body on Tuesday last (8th July), I was in my place as a member, when Burn Murdoch, Esq., president of the Veterinary College Committee of the Highland Society, rose to disavow on its part any approval of the representation given in the Report of the Royal College of Veterinary Surgeons, which he further stated was quite inaccurate. Mr. Murdoch added, that it was Professor Dick, not the Directors of the

Highland Society, who had secured for his pupils a course of Lectures on Chemistry, and that there never had been any difference of opinion between them and him as to the desirableness of having that subject taught.

There is another statement in the report to which I wish to make a slight reference, From the way in which the medal of the Highland Society is referred to, in connection with the assertion as to Professor Dick, already discussed, a reader not otherwise informed on the subject cannot fail to draw the conclusion, that, as the pupils of the Edinburgh Veterinary College were unwillingly taught chemistry, so they were left by their teacher without any encouragement in the way of premiums to study that science, and that the Highland Society stepped in to supply the deficiency. I do not blame the Council of the Royal College of Veterinary Surgeons as a body because such a representation of matters has been given. But their Secretary, at least, knew that it was a very unjust one. The Highland Society's medal was only announced on the day of examination. No anticipation of such a thing being given existed on the part of the members of the class; it supplied, therefore, no motive to exertion on their part, and the competition was, in the end, open only to the candidates for diplomas, who did not form more than a third of the class. The latter was not left, however, without inducements to exertion. Two silver medals of the same value as those of the Highland Society were offered for competition to the whole class; the one for the best answers to a series of questions, in writing, on Inorganic and Organic Chemistry—the other for the best Essay on the "Connection between Chemistry and the Veterinary Art." Three Essays were given in, and they were so good, that considerable difficulty was experienced in deciding which was the best. Ultimately, prizes were given to the authors of all of them, and I availed myself of the assistance of the chemical examiner (Mr. McGregor) appointed by the Royal College of Veterinary Surgeons in settling which of the Essays deserved the medal. He spontaneously expressed his satisfaction with the papers placed in his hands as evidences of knowledge and ability, and the Essays were laid on the table at the close of the examination. The medals, which Mr. Gabriel had more than once in his hands, were ultimately presented by Dr. Knox to the successful students, in the presence

of all the examiners. I leave it to Mr. Gabriel to explain to his fellow-members of the Council why he left these things unmentioned. There seems a very strange contrast between the anxiety expressed in the Report as to the desirableness of having veterinarians taught chemistry and the systematic and intentional concealment of the successful endeavours which the teachers in Edinburgh made, unaided, to communicate the desired instruction.

With the questions that divide the veterinary profession I do not interfere; but I regret that Professor Dick's efforts to benefit his pupils should have been so misrepresented, and that the young men to whom I found it so pleasant to lecture, should have had their endeavours to acquire a knowledge of a very difficult science so slightingly passed over.

I remain, your obedient servant,

GEORGE WILSON, M.D., Surgeon,
F.R.S.E., &c. &c.

Lecturer on Chemistry in the Extra-Academical Medical School, and to the School of Arts, Edinburgh.

Laboratory, 24, *Brown-square*.

[*From "The Mark Lane Express," 7th July*, 1845.]

In the *Mark Lane Express* for June 2d, in offering a few remarks on the proposal for a distinct Charter, by the Highland Society and others, we expressed our belief, that at the examinations held at the Veterinary College, Edinburgh, 1844, scarcely any questions relating to chemistry, materia medica, and cattle pathology, were put to the pupils: this Dr. Mercer, one of the Examiners, has denied, and has given "our gratuitous statement" (as he has been pleased to term it) *a most unqualified contradiction*. That we had good and sufficient ground for our *assertion*, the following *extract* from the report of the deputation who were present at the examination alluded to will abundantly testify:—"*There is no examination on chemistry, none on materia medica, none on physiology, none on the diseases of cattle that deserved the name*. There were by far too many leading questions, and the examinations were very unequal and unsatisfactory." The report itself, from which this extract was taken, bears the signatures of

Professor Spooner, Veterinary College, London; Thos. Walton Mayer, Newcastle, Staffordshire; E. N. Gabriel, London, Secretary to the Royal College of Veterinary Surgeons.

That the testimony of these gentlemen is one upon which the Council of the Royal College of Veterinary Surgeons places implicit confidence, may be gathered from the fact that they have adopted the above extract in the pages of their Report just presented to the profession.

In this Report we find our statement fully supported; nay, it even goes further, and asserts that the Professor of the Edinburgh Veterinary College, *this year*, protested before the Board of Examiners against *chemistry* being TAUGHT in his class.

If the report is false, then we must refer Dr. Mercer to the Council of the Royal College of Veterinary Surgeons, whose especial duty it will be thoroughly to investigate the point in dispute. It has been from authentic documents that we founded the remarks that appeared in this paper, and not from any invidious feeling towards the Edinburgh Veterinary College.

To the Editor of "The Mark Lane Express."

Sir,—In your Journal of the 7th instant, you—apparently not a correspondent this time—again refer to the examinations at the Edinburgh Veterinary College of 1844; and the "gratuitous statements"—(as I have been pleased to call them, *and to which I have given a most unqualified contradiction* in my last letter) made by you in your paper of June 2d, you have endeavoured to substantiate by a reference to a Report made to the Council of the Royal College of Veterinary Surgeons by the deputation which they had sent to be present at these examinations.

This Report, bearing as it does the signatures of Professor Spooner, Veterinary College, London; Thos. Walton Mayer, jun., Newcastle-under-Line, Staffordshire; and E. N. Gabriel, Secretary to the Royal College of Veterinary Surgeons, London, in your full belief, abundantly testifies the good and efficient grounds for your assertions. It distinctly states that there was *no examination*

in chemistry—none in materia medica—none in physiology—none on the diseases of cattle THAT DESERVED THE NAME.

It is, indeed, sometimes very difficult to define what, or to indicate who, deserves a name; but as the above, as also your former statement, is fully intended to convey an impression to the public that *none or scarcely any questions* were put to the pupils here on these branches at the examinations referred to—even granting the apostrophe of the Report, that some questions were put, but these did not deserve a name—in the face of this Report, and those individuals who signed it, *I again reiterate a most unqualified contradiction to its intrinsic truth;* and I further beg to reiterate, that the pupils were as rigidly and as extensively examined last year on all these branches as they were in the recent examinations.

Further, Sir, independent of the appeal you make to the testimony of the gentlemen of the deputation, and the fact of the implicit confidence placed in them by the Council of the Royal College of Veterinary Surgeons,—to *clinch* all your remarks, you state that the *Report* (the recent Report of the Council to the profession) goes even further, and *asserts* that the Professor of the Edinburgh Veterinary College, this year, *protested* before the Board of Examiners *against chemistry being* TAUGHT *in his class.*

To this *assertion* I again beg leave to give "another most unqualified contradiction." Professor Dick *did protest* before the Board of Examiners at the time referred to; but *he did not protest against chemistry being* TAUGHT in his class. He *protested against chemistry being considered* by the Board *as a special subject for* EXAMINING his pupils on, this year, inasmuch as he had received no intimation from the Council of the Royal College of Veterinary Surgeons *that such a branch of study should constitute an individual part of the examinations.*

Had you been aware, Sir, of the real state of proceedings that took place at these examinations, a full account of which appeared in the June number of *The Veterinarian*, you would at once have seen, on collating these, the absurdity of this assertion; and, were it deemed necessary, I would only place the names of such of those gentlemen, members of a veterinary committee of the Highland and Agricultural Society of Scotland as were present at the examination, in the balance against the name of that gentleman,

who, on behalf of the Council of the Royal College of Veterinary Surgeons, appeared on the same occasion, as to the correctness of that published Report. I will also farther refer you to the remarks of J. Burn Murdoch, Esq., of Gartincaber, the Chairman of this Veterinary Committee, made at the general meeting of the Highland and Agricultural Society of Scotland, on Tuesday the 8th inst., *a certified report of which is published in the Edinburgh Evening Courant of this date.* There you will find, in the notice of the Edinburgh Veterinary College, that this gentleman takes cognizance of the *Report* of the Council of the Royal College of Veterinary Surgeons to the profession, and especially of this *protest "against chemistry being* TAUGHT *in the Professor's class."* In charity, he hopes that "this statement has been made through inadvertency, and also in some measure perhaps from a misapprehension attributable to the confusion of the moment. *A more unfounded statement," he however concludes, "never was put upon a public record."*

On this subject of chemistry I shall only farther refer you to the three following circumstances:—

First—Professor Dick, at the last examinations, awarded a medal to that student, who, in the first year of his studies, *should undergo the best examination in chemistry.*

This prize was decided by the Board of Examiners.

Secondly—Dr. Wilson, the lecturer on chemistry in connexion with the Edinburgh Veterinary College, awarded two medals for the best essays *on the application of chemistry to veterinary medicine and agriculture.* These were also decided by Dr. Wilson and the Board of Examiners.

Thirdly—The Highland and Agricultural Society of Scotland awarded a medal to the student who distinguished himself most highly at the examinations *for his proficiency in chemistry generally.*

With such facts, Sir, which you could easily have obtained, could you ever dream of the reality of Professor Dick *protesting against chemistry being* TAUGHT *in his class?*

In conclusion, I shall now leave the matter in the hands of the Council of the Royal College of Veterinary Surgeons, courting most sincerely a thorough and impartial investigation; and though personally unacquainted with nearly all the members thereof, yet

I know that there are gentlemen there, who, for the sake of probity and justice, will impartially, candidly, and thoroughly, investigate the point in dispute.

On the honour of these gentlemen I fully and safely rely; and whenever it be deemed necessary to proceed further, I shall be happy to repeat and substantiate all that *I* have written.

I have the honour to remain,

Sir, your's, &c.,

JAS. MERCER, M.D., F.R.C.S.E.

Lecturer on Anatomy, &c., and Member of the Edinburgh Veterinary Examining Board.

50, Northumberland-street,
Edinburgh, July 10, 1845.

To the Editor of "The Mark Lane Express."

Sir,—OUR attention has been directed to a letter which appeared in the *Mark Lane Express* of July 21st, from Dr. Mercer, of Edinburgh, in answer to some remarks which appeared in a former number of your journal, and also in contradiction to a paragraph contained in our Report to the Council of the Royal College of Veterinary Surgeons, which stated that "There was no examination on chemistry, none on materia medica, none on physiology, none on the diseases of cattle that deserved the name," at the examination of the pupils of the Edinburgh Veterinary College last year.

To the truth of this Report Dr. Mercer ventures to give "a most unqualified contradiction;" and further reiterates that the pupils were as rigidly and as extensively examined on all these branches as they were in the recent examination. Notwithstanding, however, this charge of having asserted a deliberate falsehood, and thus deluded the Council of the Royal College of Veterinary Surgeons, we most solemnly and deliberately aver that every word contained in our Report with reference to the examination is true in every particular. We declare that the pupils were neither strictly nor extensively examined; that numbers were never asked a single question on any one of the subjects mentioned; and that those who had any questions put to them gave very indifferent answers; the whole examination evidently

shewing that their education on these important points was both limited and defective.

We witnessed these things with pain. We regretted that so many young men should be considered fit to enter on a professional vocation so lamentably ignorant of subjects, a knowledge of which is so indispensable to the veterinary surgeon; and we expressed our opinions and feelings to the Council in words which Dr. Mercer declares to be entirely false.

But we heard with our own ears, we saw with our own eyes, we have the testimony of our own consciences, substantiated by gentlemen who sat at the same table, who took part in the same examination with Dr. Mercer, and whose rank, station, and character in the medical world entitle them to the confidence of the public. And what is the result? Examiners and pupils, medical men and veterinary surgeons, have one and all given their testimony to the truth of our statements. Nay, more, Dr. Mercer's own letter proves the truth of our Report; for if the pupils have been invariably and rigidly examined on chemistry, &c., why should Professor Dick have objected to his students being examined on chemistry? Let Mr. Burn Murdoch, Chairman of the Veterinary Committee, return the answer:—"Professor Dick objected to chemistry being recognised on that occasion, as a necessary part of the examination, on the ground that it had not been customary to do so."

Does Dr. Mercer mean to assert that we do not know what an examination ought to be?—and that we are not capable of expressing with truth that which we both saw and heard? Does he mean to state that we have set down from malice and design that which did not take place? Does he mean to declare that the pupils of the Veterinary College of Edinburgh were extensively examined on organic and inorganic chemistry?—that they knew the composition, and could explain the decomposition, of the different substances used in veterinary medicine?—give the names, properties, and places whence obtained, of the different vegetable productions we employ?—were asked to explain the physiology of the various structures in ruminants, and the nature and proper mode of treating the diseases to which they are liable? If he does, let him come before that tribunal to which he has appealed, and substantiate his remarks. Let him bring his

witnesses before the Council of the Royal College of Veterinary Surgeons: there will we meet him; there will we give evidence to prove that we have stated the truth, the whole truth, and nothing but the truth.

We are, Sirs, your obedient servants,

EDMUND N. GABRIEL.
T. WALTON MAYER.
CHARLES SPOONER.

From "The Veterinarian."

A LETTER bearing the signature of James Mercer, M.D., F.R.L.S.E., Lecturer on Anatomy, &c. and Member of the Edinburgh Veterinary Examining Board, having appeared in the *Mark Lane Express* and now in your periodical, a few remarks on some portion of its contents become necessary. My attention had been called to it on its publication in the *Mark Lane Express;* but as I am by no means proud of engaging in a newspaper controversy (partly, perhaps, because not being a Lecturer on etceras), I had no particular object in taking that means of advertising myself to the public, I should not have replied to it had not my colleagues in some parts of the transaction thought it desirable that my answer as well as their own should appear through the same media as the charges brought against us. *The Veterinarian*, however, having also become the vehicle of communication, the veterinary profession becomes interested in the affair, and it is but fair that they should be set right in the matter.

The first part of the letter I have left my colleagues to reply to, feeling very certain that either of them is quite capable of setting the question of veracity at rest, to the satisfaction of the profession, if not to the satisfaction of Doctor Mercer.

In my report of the examinations at Edinburgh, of this year, I stated that Professor Dick protested against chemistry being required to be taught to his class. I made a minute of the protest at the time it was made, fully believing it to be correct. It is just possible I may have misapprehended a single word, namely, *taught*

for *examined;* and the authority of Mr. Burn Murdoch, in some remarks he made to the Highland and Agricultural Society, would tend to make it appear it was so; the protest it seems, from that gentleman's shewing, was not against chemistry being taught to the class, but against the class being examined on chemistry. The difference between the two statements, in their practical effect, is rather a fine-drawn one; for whether a protest is entered against a subject being taught, or against the pupils taught being examined as to their knowledge of it, the result as a guarantee to the public will be found to be the same; for in the present day no man who is taught a particular subject has a right to expect to have it taken for granted that the subject is properly understood, unless means are afforded of testing him on it.

But the learned Doctor not only asserts that Professor Dick did not protest against chemistry being required to be taught to his class, but that he actually awarded a medal to that student who in the first year of his studies should undergo the best examination on chemistry. Now to this assertion I give a "most unqualified contradiction." Professor Dick did not give a medal to the student who should undergo, in his first year, the best examination in chemistry. I had not the pleasure and satisfaction of having two colleagues to bear me out on this occasion, but I find no despicable one in the Report of the examinations given in *The Veterinarian* for June: that Report, after alluding to the medals given by the Highland and Agricultural Society, *two* of which were for chemistry, not *one* only, as mis-stated by Doctor Mercer, states, "Professor Dick also awarded the following prizes: Silver medals to Mr. Bowman, for the second best anatomical preparation; and to Mr. William Walker, by the united suffrages of his fellow students, for the best answers and general proficiency exhibited at the public weekly examinations of the class;" and then mentions others awarded by Dr. Wilson for proficiency in chemistry. This report was evidently drawn up by the authorities of the Edinburgh Veterinary College themselves, or by some of their friends and coadjutors. "In charity"—I quote this opportune expression from the doctor's own letter—"in charity," it is to be hoped it did not emanate from the author of that letter himself; as, if it did, so great is the discrepancy between these two statements, that well

might the worthy Professor exclaim, as so many have done before him, "The Lord deliver me from my friends, and I will defend myself from mine enemies."

A mis-statement on the ground of mis-apprehension of words spoken is neither pleasant nor desirable; but a mis-statement on a matter of fact, that might have been easily verified, is not only more condemnable in itself, but it is just possible that it may be supposed to give colouring to other matters mixed up with it.

A letter from Dr. Wilson, in *The Veterinarian* of this month, is much more deserving of attention, and, with one exception, I have perused it with some satisfaction; and I consider that both the veterinary profession and himself are much indebted to the mistake it would appear I have committed, as it has been the cause of much valuable information having been elicited.

The profession, on this side of the Tweed at least, if not on the other, was not aware, and I most certainly, up to the moment of reading his letter, was not aware that he had been engaged, either by the Highland and Agricultural Society or by Professor Dick, to lecture on chemistry to the Clyde-street School. I understood at the time that his class had been thrown open, as those of Dr. Knox and others had so liberally been, to veterinary students, and that he had given medals to those who best attended his lectures. Not a word was said at the examinations that could lead to the conclusion, either that the course of lectures given, or the medals awarded to those attending it—awarded by and inscribed with the name of Dr. Wilson—were provided at the expense of Professor Dick. I am but too happy to learn they were so, and can scarcely regret an error that has caused such very gratifying information to be laid before the profession. With a single exception, therefore, as before stated, namely, that of the illiberal and unfounded charge of "systematic and intentional concealment," a charge quite unworthy of Dr. Wilson to make, and too contemptible for more than a mere denial, I have perused his communication with much information, and with considerable though not unmixed satisfaction.

I am, Sir, your most obedient servant,

E. N. GABRIEL.

Rabies in a Mare, Cow, and Heifer.

By Mr. J. Mannington, *V.S.*,

Uckfield, Aug. 20, 1845.

Dear Sirs,—Seeing in the public journals an account of some animals being attacked with rabies in the neighbourhood of Uckfield, I rode over there a few days since, and from Mr. Hallett, the owner of the diseased animals, received the following particulars, which, although hastily thrown together, I hope will not be deemed by you altogether unworthy of a place in the Veterinary Record. In the appended description there are points that will awaken both regret and pity; and, from causes which are sufficiently obvious, it is necessarily imperfect.

I am, dear Sirs,

Respectfully yours.

To the Editors of
"The Veterinary Record."

On the 30th of June last, a dog belonging to Mr. H. presented the following symptoms: He howled very much, dragged himself on his belly, then rolled on the ground as if in a fit, and was only roused from this state by his master's voice, coming to him when called, and retreating when scolded; thus shewing that the dragging on the ground was not caused by paraplegia, which is a frequent accompaniment of rabies in dogs. When left to himself, he would recommence howling and rolling, but *shewed no inclination to bite*. Supposing him to be mad, he was shot an hour or two after the first appearance of the attack. On July 4th, as a young man was walking in the road from Mr. H.'s house, a strange dog met him, and on his attempting to pat the animal, he was bitten through the hand by him; the dog then ran away towards the field in which the horses and cattle were turned out. It is even at this time not known to whom the dog belonged or what has become of him, as he was not seen afterwards; and I am inclined to believe that this was the animal which has caused so much mischief, and not Mr. H.'s dog. About three weeks afterwards, namely, on the 26th July, a cart mare, after having worked all day as usual, was turned out on another farm of Mr. H.'s, some distance from his residence. She was seen grazing on the 27th, at 11 A. M., very

quietly, but about 1 P.M. was observed to run after and bite the other horses in a most furious manner, and, covered with perspiration from excitement, tear the bark from trees in the field, and gnaw the roots above the ground: she nearly gnawed through the top rail of a gate, and afterwards with her teeth lifted it from its hinges, and carried it into the road; she then tore down some bars and got into a wheat field, frequently attacked a pony who followed her about, and, what is very singular, although this animal was covered with blood and saliva from the gums and mouth of the rabid mare, not the slightest abrasion of the skin could be detected. At times the paroxysms would abate, and she would bite some of the wheat-ears off, and eat them; but if any one approached her, she would run at them furiously, endeavouring to bite them; at times she would seize her arms and legs, which she lacerated to a great extent, and all her incisors were at last broken by the violence with which she continued to seize the gate, bars, &c.

All efforts to secure her were unavailing, and she continued in this state until 6 P.M,, when she fell exhausted, and was unable to rise. When down, she attempted to bite the ground, and appeared to be extremely vicious: death fortunately put an end to her sufferings in about two hours from the time she fell.

On the 29th July, being the Tuesday following, a three-year-old polled cow, in the same field, was observed to kick violently, rub her head and cheeks against posts or trees, and scratch them so much with her hind feet that the skin became abraded: she bellowed loudly, yet *she was not at all spiteful, nor did she attempt to butt or seize any one with her teeth;* but on her road to a yard into which she was driven, she was continually rubbing herself against posts, &c. She was placed in a shed, and continued bellowing and kicking until evening, when she became spiteful, would run at persons who looked at her, or seize a stick that was placed in the stall. She continued in this state all night, and was shot the next morning, after having, through her violence, become a mass of bruises, particularly about her head and legs.

Exactly a fortnight after this, namely, on Tuesday, Aug. 12th, a yearling heifer, also in the same field, shewed symptoms of abdominal pain, as her owner supposed. She was seen pawing and

scratching, bellowing, lying down and rising again almost immediately, and presented a very wild expression of countenance. She was suffered to remain for an hour or so; when on Mr. H. going towards her, she ran at him, and also at other persons when near her; she did not, however, attempt to gore the other beasts; on the contrary, if they approached her, and presented their horns, she would crouch and sink down as if cowed.

Mr. H., on horseback, assisted by several men, drove her and the other stock into a yard, and afterwards turned all the others out. Here she became, if possible, more furious, running at any one she saw, even though separated from them by a gate or rails. All efforts to secure her were fruitless for above two hours, when she ran into a stall, and was immediately confined. A rope was then thrown over her head, which was pulled close to a post and raised, so that a powder might be given to her, procured from Mr. ————.

This was dropped on her tongue as directed, and she was again released. She continued furious all that night, and also the following day; no benefit being derived from the medicine. Two of the powders were then given, but she still continued in the same state until the next morning, although much exhausted, when she died, never having attempted to bite during the whole of the attack.

It will from the above be seen, that it is not at all certain what dog these animals were inoculated by, as none was known to bite them, nor was there any lesion of the skin observed on any of them, and, most unfortunately, no post-mortem examination was made, which is much to be regretted; but such was the dread instilled into the minds of persons in the neighhourhood, that Mr. H. told me some of his neighbours would not even visit him, being afraid of the infection: the animals, therefore, were buried skins and all. I, however, have Mr. H.'s promise, that should any more of these interesting though horrible cases occur in any of his stock, that he will acquaint me of it immediately, so that I shall be able to make a post-mortem examination, provided always that Mr. ————'s powders have no more beneficial effect than those which have been tried. I may also have an opportunity of seeing the animals alive, and thus furnish a more detailed account of the symptoms.

Mr. H. has received from the person referred to a preventive for

rabies. It is a colourless liquid, and on obtaining a small quantity of it, I conclude from the following tests being applied by me, that it is hydrocyanic acid. Its smell is characteristic. With nitrate of silver it throws down a white precipitate, which from its minute quantity I am unable to demonstrate to be the cyanide of silver. Neutralized by hydrate of potass, on adding a solution of sulphate of copper, a light green precipitate is thrown down, which becomes almost colourless on hydrochloric acid being added. Neutralized as before, on the addition of sulphate of iron, a dirty green precipitate is produced. Sulphuric acid being now added, it becomes slightly blue: if the acid is in excess, the precipitate is dissolved with effervescence, and a colourless liquid results.

This hydrocyanic acid is ordered to be given to the animals in doses of one drop in a wine-glass of water every morning; and the young man who was bitten was recommended to take the like dose, daily. I am happy to say he continues in good health. I have enclosed you one of the powders: you will find it very small in quantity, white, and sweet to the taste. I have not attempted to test it, on account of its smallness; but must leave you to decide its composition.

The directions for its use are as follow:—

If benefit follows the administration of the first dose, which may be seen "from the spirits and look of the patient" [these words would lead us to suppose that Mr. ———— had seen some cases of recovery], no more is to be administered until the good effects of this first dose are passing off, when another is to be given. If no benefit be derived from the first dose, another powder is to be given in twenty-four hours, and so on, as long as the animals are alive.

Mr. H. inquired of me if I considered a rabid horse or bullock capable of communicating the disease to another animal? I answered, it was a disputed point; and I thought no well-authenticated facts had ever been brought forward in support of this view, but that the generally received opinion is that it is not communicable by the herbivora or graminivora, but only by the canine and feline tribes. I, however, find that Mr. Youatt considers it can be communicated by the herbivora as well as carnivora. Perhaps you will be kind enough to favour me with your views on this subject.

It is remarkable what a difference existed in the premonitory

symptoms of the two beasts, one case appearing to me to resemble dumb madness, as it is termed in dogs, and the other ferocious.

No water being offered to them, I do not know if they were at all hydrophobic.

[We are much obliged to Mr. Mannington for the history of these cases, brief as it necessarily is: the zeal he has manifested augurs well for his future professional reputation. We confess we are unable decidedly to answer the question he has put to us respecting the communication of rabies by the herbivora. In common with himself, we believe there are no well-authenticated facts of its being so placed on record, but we rather incline to the opinion that it may be thus transmitted.

In the *Proceedings of the Veterinary Medical Association* for 1839-40, page 369, a most interesting account of a flock of sheep having been bitten by a rabid dog will be found. It was forwarded by the late Mr. Hickman, of Shrewsbury, who also sent to the College one of the rabid sheep: the symptoms evinced by this animal, and the post-mortem appearances, are there given by Mr. Spooner. During the life of the sheep, Mr. Simonds inoculated two rabbits from it by introducing setons saturated with its saliva behind their ears. This was on Monday, April 22d.

On the 23d and two following days they exhibited no deviation from a state of health; but on the 26th both were dull, hanging their heads, and inclining them on one side. They took their food when placed before them, but evinced little desire for it. Towards evening the respiration of one of them became considerably increased, and likewise the state of stupor. The other manifested a strange desire for jumping, which it did in an awkward manner, having, seemingly, lost much power over the action of the voluntary muscles on one side. Occasionally, in these springs, its head would come in contact with the wall of the box, but this did not deter it from attempting to perfect the act. At midnight they were both evidently worse; and, on taking them up and placing them on their sides, they would remain in that position for some few minutes, being in a state of unconsciousness.

27*th*.—This morning each was seen resting its head on the floor,

supported upon the mouth, and from this comatose state they could not be roused. On turning them on their sides, they struggled until they had resumed their first position. The appetite was totally gone. There was occasional spasmodic twitching of the muscles. This stupor hourly increased, and about 2 P. M. one died: the other would attempt at times to jump, which it did still more awkwardly, alighting nearly upon its head. If teased, it would utter a slight moan, expressive of its sufferings, and obstinately refuse to alter the position of the head, which it seemed quite incapable of supporting. At 9 P.M., I found it lying on its side, evidently fast sinking. At this time a cat and dog were inoculated with its saliva.

The first rabbit which died presented the following appearances on dissection:—The wound made in the neck, where the virus was introduced, was of an unhealthy character, its edges being thickened from deposition of lymph, and here and there were spots seemingly going on to suppuration. The cellular tissue surrounding it was inflamed, and infiltrated with serum.

The abdominal viscera:—The coats of the stomach were thickened towards the pyloric orifice, apparently from rigid contraction; and traces of inflammation were on its peritoneal surface. The internal coat was covered with a white deposition, similar to pus. This viscus contained some food, which was closely compacted in the pylorus. Its rugæ were inflamed. The small intestines exhibited marks of increased vascular action. The vessels of the bladder were beautifully injected, and considerable inflammation of the uterus, both of its body and cornua, existed. The dorsum of the tongue and the epiglottis were inflamed; and a singular injection of vessels, beautifully marked, pervaded the whole course of the trachea. On its internal and upper side some frothy viscid mucus filled the larynx. The vessels ramifying on the pericardium were injected. The lungs were also inflamed; and the thorax contained some effused fluid. The vessels on the right hemisphere of the cerebellum and on its external surface were injected—not so the left. The vessels ramifying on the medulla oblongata were also beautifully shewn.

The second rabbit presented similar abnormal appearances, varying, however, in degree; for instance, the larynx and trachea shewed greater symptoms of inflammatory action. The stomach

was not so much affected, but coated with the same inspissated mucus.

May 3d.—The cat and dog are apparently quite well.

Two rabbits were setoned in a similar manner to those above described, in order to see how far such an operation might be connected with their disease and death. The setons were removed after being in the same length of time as the others.

8th.—No symptoms of illness arising from the above experiments have yet been observed in either rabbit.

Before this day two other rabbits were inoculated by the same means, using the saliva of a healthy sheep; but not one unfavourable symptom followed, and they are now in a state of apparent health.

We leave those experiments to speak for themselves.

We have not been so successful in ascertaining the nature of the powder Mr. Mannington has sent us as he was with the liquid, respecting which little doubt can rest on the mind of its being what he states. This will not appear so surprising when we state that the weight of the powder is only two grains and a half. It has no odour, a sweet taste, leaves no impression on the palate, and has the appearance of dirty pulverized white sugar, of which it is principally constituted; for heat causes it to swell up and blacken, when it gives off the characteristic smell of burning sugar. Dissolved in distilled water, neither the hydrosulphate of ammonia, nor the iodide of potassium, nor the nitrate of silver, gave indication of any mineral substance being present. The galvanic circle was also equally ineffectual. It may be one of the vegetable alkaloids; as strychnia, atropia, veratria, &c.; but since homœopathists deal in the decillionth of a grain as their dose of a therapeutic agent, which they obtain by division and subdivision with sugar until they have this portion remaining in a given quantity of the powder, by chemical re-agents we can hardly hope to prove its existence, even were we in possession of certain tests by which these very active substances may at all times be demonstrated.]

Case of open Parotid Duct in a Cow.

By Mr. J. M. Leech, *M.R.C.V.S.*

Dear Sirs,—If you think the following case worthy of a place in The Veterinary Record, you will oblige by its insertion

Ashbourne. Your old pupil, &c.

On the 23d April last, I was requested by one of our employers to see a short-horned cow that had received an injury from the horn of another cow. The messenger who came stated that there was a small hole on the side of the face, from which *water* issued.

Upon my arrival I found, as the person had described, a small wound upon the side of the face, situated about four inches superiorly and anteriorly to the angle of the posterior maxillary bone, causing a division of the parotid duct, from which was issuing a large quantity of saliva. The whole of the fluid did not escape by the external orifice, but a large quantity had infiltrated itself into the cellular structure of the cheek, causing considerable and frightful swelling of the parts. The cow in every other respect seemed in perfect health. I at first thought it advisable to have the animal destroyed; for when we take into consideration the size of the duct and the function over which it presides, it appeared almost a hopeless task to attempt a cure, since the quantity of saliva secreted in this class of animals is very great, so as to enable them to perform the process of rumination healthfully. But my employer wished me to do something for the animal; and I at first thought of cutting down upon the duct and injecting some caustic agent, so as to destroy the secreting power of the gland, similar to what has been tried upon the horse. Yet this, in my mind, did not seem a plan at all feasible, or calculated to restore the cow to her pristine condition, which I inferred would become impaired by the want of action in this gland. The next question which arose in my mind was, Can we by any means give a certain amount of pressure to the side of the duct, which would cause inflammation to be set up, and, as a consequence of this, we may expect that the process of granu-

lation will take place, whereby the opening might possibly become closed? This plan we determined to adopt, as being likely to effect our desired object. It was performed in the following manner:—A circular piece of leather was obtained, about the size of a crown piece, and the external wound was slightly enlarged, so as to allow of its introduction. This was then placed over the divided duct, and upon the outer surface a large quantity of tow was laid; the edges of the wound were then brought together by means of sutures passed through the skin, which was the whole of the surgical treatment adopted that day. A dose of aperient medicine was given, the animal ordered slop diet, and to be kept in a state of perfect quietude.

On the next day the external swelling was considerably increased, so much so, that a portion of the animal's horn had to be removed to prevent pressure. Rumination and the secretion of milk were not at all interfered with. During the three following days the swelling gradually became less, and at the end of the seventh day we deemed it advisable to open the wound and remove the piece of leather. Pressing against that side of the leather which was in contact with the duct was a cluster of beautiful granulations: thus were our expectations more than realized, and assurance given of the successful issue of this singular case. The external wound was then dressed in the ordinary way, from which there issued a small quantity of laudable pus; and in a few days afterwards the animal was discharged cured.

I saw the owner last week, and he tells me that the cow is now as well as ever she was in her life, and performs all her functions regularly, as if nothing had ever happened.

This case will, I believe, be the first published in THE VETERINARY RECORD. It is not only remarkable for its pathological character, but also in a physiological point of view; for I was enabled to measure the amount of saliva which was secreted per minute by collecting it from the ends of the divided duct during the act of mastication, and I found it to amount to no less than a pint; an immense quantity during this small period of time. I should say that a loss of one duct to the class *ruminantia* must be of more consequence than it is to other animals, they having to perform the process of rumination. I will not occupy your valuable space

by any more remarks upon this case, leaving you to fill up where it is wanting, knowing as I do the interest you feel and the zeal manifested by you towards the onward progress of veterinary science.

I remain, truly your's, &c.

Larva of the Helophilus Pendulus found on the Spinal Marrow of a Horse.

By Mr. E. Stanley, *M.R.C.V.S., Banbury.*

Dear Sirs,—It is now some years since that the following strange case came under my notice; but, it being so unusual, I have thought you might deem it worthy of a place in your valuable Journal.

The subject was a cart horse, belonging to a Mr. Dodd, miller, Warwick. I am writing solely from memory; but the facts made such an impression on my mind at the time, that I am sure I was not mistaken either in the symptoms that shewed themselves or the cause of the disease. The horse at the onset of the attack appeared to have injured his spine; there was partial paralysis present, attended occasionally with acute pain. Being walked out one day, when about half a mile from home, he was suddenly seized with violent trembling of the limbs, profuse perspiration, and other acute symptoms, altogether very uncommon. With some difficulty he was walked home. I cannot now say positively whether he was destroyed, or that he died from the attack, but he did not continue in this state of intense suffering longer than from twenty to twenty-four hours. Upon examination of the spinal sheath, there were observed most decided marks of inflammation, with extravasation of blood about the lumbar and posterior portion of the dorsal region from fourteen to eighteen inches in length; and upon a careful investigation I found a grub of a dark brown colour lying on the spinal sheath: its body was the thickness of a common slate pencil, and about half an inch long; it had a very thin tail, as long as its body, on which were apparently many very short legs. Instituting some inquiries, I found it to be a larva of the helophilus pendulus, which is frequently met with in

privies and drains. I have not the least doubt in my mind but that the grub was developed in that locality. While in the state of embryo it did not interfere with function, but, the moment the ectozoon became alive and active, it then gave rise to the symptoms I have already detailed.

I am, your's, &c.

Strongyles found in the Cellular Membrane surrounding the Kidney of a Filly.

By Mr. J. Harvey, *M.R.C.V.S., Bath.*

My dear Sirs,—Having recently met with a case which I consider of unfrequent occurrence, I beg through you to communicate it to the profession. The subject was an eleven-months' old filly which had during the winter received every attention, as far as food and being kept in a loose place were concerned, and never shewed symptoms of the least disease up to the time of her being turned out to grass, which was on the 21st of May last. The field was very hilly and much exposed, and the weather, for the time of the year, exceedingly cold. The day she was turned out, on the coachman leaving the field, she ran after him, and leaped over a gate about four feet in height, but did not at the time shew any irregularity in her action from doing so. She was seen every day by some of the servants up to the 27th of the same month, when I was sent for; the groom having been informed that she staggered as she walked, and on his arrival he found, on attempting to move her, that she fell down and could not rise. I ordered her to be removed on a dray to my infirmary, which was easily accomplished. After time had been allowed her so as to recover from the excitement, I found the pulse 50, and full, the breathing, however, tranquil: great pain was evinced on pressure being applied along the lumbar region, and more particularly over the right kidney. The extremities were warm, the visible mucous membranes healthy; fæces and urine of the usual character; but she had lost all power of supporting herself on the hind legs.

I bled her that evening, and administered an oleaginous purgative, had the legs well bandaged, and the loins fomented with warm water. On the following day the muscles of the lumbar region were much swollen; the pulse was about the same; the bowels being freely acted upon; the appetite good; the urine voided without any pain, and of its natural colour. She continued in this state till June 3d, during which time I administered sedatives and applied active counter-irritants along the spine, when the owner requested she might be killed. I attended the post-mortem examination, which I now give you. The viscera of the thorax were perfectly healthy, as also those of the abdomen, excepting the right kidney, which was increased in size, and the vessels thereof in a highly congested state; and embedded in the membranous matter with which this kidney was surrounded were at least two hundred small worms, some of which I have forwarded to you. I carefully examined the vertebral canal, which was entirely free from all disease.

Trusting this communication may be acceptable, believe me ever,

Your's truly.

[These worms appear to belong to the strongyles. The *strongylus gigas*, which may be accepted as the type, is frequently developed in the parenchyma of the kidney itself of dogs, oxen, horses, and sheep. We have seen the kidney of a dog filled to repletion with these parasites. They are said to vary in length from five inches to three feet, and in diameter from two to six lines. The body is elongated, slightly impressed with circular striæ, tapering towards each extremity, and generally of a dark colour, supposed to arise from the nature of the food which is necessarily derived from the vessels of the kidney. The head is truncated, and the mouth fringed with six small papillæ: the tail of the male is bifid,—that of the female obtuse.]

The following case, although unfortunately incomplete, is not, we think, without some degree of interest, and therefore worthy of being inserted:—

A Disease of the Brain simulating Phrenitis.

By Mr. W. S. Wallis, *M.R.C.V.S.*

My dear Sir, *Halstead.*

I know I am not asking too much of you when I request you to consult your colleagues, Messrs. Spooner and Simonds, on the following case, and convey to me at your earliest convenience your joint opinions on it, with counsel how to act. I confess it perplexes me.

The subject is a full sized Suffolk cart-mare, nine years old—good constitution—not a greedy feeder—temperate, and an excellent worker—healthy and hardy.

On the 10th of Sept. ult. she was seized while at work with a kind of stupor, and nearly fell. I was immediately sent for, and on reaching the stable found her standing with her head depressed nearly on the ground—eyelids closed. She was quite unconscious of surrounding objects, and with great difficulty was moved from her position, and, when moved, remained perfectly still wherever placed:—breathing slow, and slightly stertorous—pulse 26, and oppressed—conjunctival membrane yellow, and somewhat vascular—pupils not unnaturally dilated, nor have they been subsequently.

Treatment.—The owner had taken three quarts of blood when I arrived, and I abstracted five quarts more without any perceptible effect upon the pulse, although it evidently relieved the animal: blisters were applied to the head, and sedatives administered. In a few days these remedial means, with a restricted diet, seemed effectual, and for a time she appeared to have recovered. On the 24th, however, she manifested a little drowsiness, when I gave her a dose of purgative medicine, which operated well, and restored her once more apparently to her usual health and spirits.

Oct. 1.—She is dull again. Take blood six quarts, give a purging ball, and insert two setons in the neck. I then administered sedatives for a few days, when again she recovered, and appeared to be in perfect health until the 20th, when the unfavourable symptoms reappeared. I now detracted blood to the amount of two gallons; pulse during it rose for the first time—

gave a physic ball, and blistered the back of the head and forehead.

On the 21st I repeated the blood-letting, and the pulse rose again; I also repeated the blisters and exhibited sedatives. On the 22d I bled to approaching syncope, and continued the sedatives till Nov. 2d; when, with some little confidence, I discharged my patient as convalescent. From this time to Dec. 6th she was in high spirits and excellent health; when, after a few days' light work—little more than exercise—she relapsed into her former state, and is now almost as insensible as ever. Perhaps I ought to have stated that, up to the 20th of Oct., we could not lower her condition; since then, however, by the aid of bleeding and mercurials, she has been considerably reduced in flesh, but to no purpose. She has lived throughout upon mashes, with bran and carrots. On Saturday last I administered another purging ball, and this morning she is quite herself again.

Waiting your reply,

I am, my dear Sir,

To Mr. Morton. Your's, &c.

Royal Veterinary College, December 13th, 1844.

My dear Sir,

The case you have requested me to consult Messrs. Spooner and Simonds about is, certainly, one with which is associated much ambiguity. That it is a cerebral affection there can be little doubt; but whether the sensorium is sympathetically affected or undergoing some organic change is not so easily decided. From the relief which has been from time to time afforded by the measures adopted by you, one would be inclined to suspect the former, while the recurrence of the attacks indicate the latter. As, in all probability, the death of the animal will alone decide this question, in the mean time you are, of course, desirous of knowing if any other kind of treatment can be had recourse to beyond that you have already resorted to. It is suggested—fearing that effusion may be taking place within the ventricles of the brain—that a trial be made of the iodide of potassium, both given internally, combined with diuretics, and applied externally, keeping the bowels in a soluble state by the occasional interposition of a dose of laxative medicine. Farther depletion by blood-letting it will be as well to abstain from, unless

the urgency of the symptoms imperatively demand it. Continuous counter-irritation may be set up by means of a seton smeared with some active digestive, or one of the compounds of iodine, particularly the biniodide of mercury.

We shall be glad to hear the result of the case, whether favourable or otherwise: if the latter, we shall be much obliged by the morbid parts being forwarded to us.

Truly your's,

W. J. T. MORTON.

My dear Sir, *Halstead, June 25th,* 1845.

I AM very sorry that your letter of the 5th instant has remained unanswered so long: the truth is, I have been so much engaged of late that it has been quite overlooked. I trust, therefore, you will pardon my seeming neglect.

The case referred to, I believe, at the time I wrote you was suffering from a relapse: a dose of physic had relieved her by the time your kind suggestion arrived. I much wished to have pursued the treatment you advised; but as the mare had been a considerable expense and trouble, and was now in a state to shew for sale, the owner, thinking that he had seen and suffered enough already, sold her for £7 or £8, and I have not been able to learn any thing respecting her since.

This case possessed considerable interest, and I should have been glad if circumstances had permitted me to see the end of it; but you are aware that few of our employers in the country have much sympathy with us in the pursuit of scientific knowledge, so that we are not unfrequently thwarted.

I feel much indebted to you for the kind and prompt manner in which you replied to my inquiries.

Believe me, as ever,

Your's very truly,

W. S. WALLIS.

To Mr. W. J. T. Morton.

NOTE FROM MR. T. D. BROAD.

Dear Sirs, *Trowbridge, June 1st*, 1845.

I SEE in the last RECORD there is a slight mistake in the wording of the case of Phrenic Hernia forwarded by me in January. There was no laceration of the diaphragm, but *the intestine had passed through the foramen dextrum*. I regret that I did not forward the specimen to you.

RUPTURE OF THE ILIAC VESSELS.

A HORSE died last night in a very singular manner. He had been dull and off his feed for two or three days, but he did not appear to suffer any pain, and the pulse was scarcely above the natural standard. He, however, died suddenly in my presence, after taking a little water, without even a struggle. I saw the body opened this morning. The abdomen was full of blood, and an immense large coagulum underneath the peritoneum in the vicinity of the iliac vessels. The cause of death, therefore, was, doubtless, internal hæmorrhage, arising from a rupture of these vessels.

OPEN PAROTID DUCT.

In March last I had a cart-horse brought to me in a very emaciated state, having a very large abscess situated between the branches of the inferior maxillary bone, and an opening into the parotid duct, so that as soon as the animal began to masticate, the saliva flowed out in a stream. The stench from the wound was so great that I was obliged to wash it freely with chloride of lime before I could examine it satisfactorily.

The after-treatment I adopted consisted merely in sprinkling slaked lime on the wound several times in the day, the horse being fed sparingly on mashes from the ground, as I have observed that the escape of saliva is always less than when fed from the manger. He immediately began to improve, and the flow of saliva to diminish; and in the course of a month the wound had healed, the animal recovered his former condition, and he has done well ever since.

I am, your's respectfully.

Dr. Thibert's Model Museum of Pathological Anatomy.

We were much interested on a visit to this museum. It has long been a desideratum among pathologists to preserve the natural colour of morbid specimens; and the various fluids that have been employed for this purpose have all of them failed to do so, if we except the solution recommended by Mr. Goadby, of which an account will be found in the present number. There is, moreover, this objection to be raised against "wet preparations," as they are designated: when of any size, they require large glass vessels for retention, and the moving of these about, or the use of them in the lecture-room, is attended with risk of breakage and loss. And, in addition, a still more important fact may be urged:—an abnormal change has taken place in an organ or some of the tissues, and, what is rarely to be met with, it presents all the diagnostic characteristics. The fortunate possessor of such a specimen prizes it highly; but the professional public derives no benefit whatever from its existence.

To meet these difficulties, drawings and models in wax have been proposed. The first make but little impression, from the sense of seeing being alone exercised; they are, therefore, soon forgotten. There is nothing tangible in them,—nothing that communicates to the mind the idea of its being the thing itself, and not its mere representation. This, it is true, may be gained by wax; but the objections to this material are so obvious as to need no comment. We think Dr. Thibert has been extremely fortunate in forming a composition which at first, we presume, possesses great plasticity, so as to permit of its being moulded into the most delicate forms, which it retains, and also to represent the various tissues of the frame; while, afterwards, it becomes so hard as to bear the freest handling, and even to resist blows. With this composition a copy of the diseased part is made, and from this a mould being obtained, any number of casts may be readily taken, and these, being coloured, will give a faithful representation of the original preparation. We saw diseases of the skin and of the lungs; of the eye, liver, kidneys, &c. of the human subject, and glanders in the horse, admirably pourtrayed, and which we were assured

would retain their beauty—if the term may be applied to truthful and most vivid resemblances of many " of the ills which flesh is heir to"—for an indefinite period. The cost, too, is comparatively trifling; while by a simple and ingenious plan such preparations as from their nature, perhaps, are better not exposed, may be enclosed in a book-like form; and these, being arranged on shelves, will present the appearance of a library.

The Museum is open for inspection, at 29, Bridge House Place, Newington Causeway, on Mondays, Wednesdays, and Fridays, from 11 A.M. to 4 P.M.

EXTRACTS
FROM FOREIGN VETERINARY JOURNALS.

FROM the favourable opinion many have been pleased to entertain of our labours, and especially among our Continental brethren, we have been enabled to effect an exchange of Journals with them. This we hail as a means likely to be productive of much good; since we are thus made acquainted with what is taking place in the veterinary profession both at home and abroad, and are enabled to place in juxta-position the different views that may be entertained of the same disease. Our pages therefore will, from time to time, be enriched by articles of novelty and importance taken from these works. Among the more recent publications is the *Journal de Médécine Vétérinaire de l'Ecole de Lyon.*

This periodical commenced on the 1st of January, 1845, and it promises to be of value to the veterinary surgeon. The first article is by M. Kainard, Professor of Pathology at the Veterinary School of Lyon, " Maladies qui succedent le parts dans les femelles des Animaux domestiques," from which we make the following extracts:—

ON MILK FEVER.

THE above name is given to the fever which appears on the third or fourth day after parturition, and coincides with the tumefaction of the lacteal gland, &c. It is infinitely less marked and less frequent in animals than in the human subject. Anatomy ex-

plains this difference in a satisfactory manner. In both, the uterus receives its supply of blood from the abdominal aorta; but not so the lacteal glands. In the human subject the mammary glands are supplied by a branch of the anterior aorta, while in animals these glands are supplied from the same vessel whence the uterus is supplied. In the first there is a change in the current of the circulation, while in the latter the current remains undisturbed. The mammary gland receiving its blood from the same portion of the aorta, there is no plethora; and, therefore, this angiotenic inflammation can hardly exist; there would, in fact, be nothing more than a slight derangement caused by congestion in the gland; that is to say, this fever, in the domestic animals, would be only a local affection. This, however, is principally applicable to those animals which are uniparous; among those which are multiparous, some offer an exception, as, for instance, swine, in whom the first three pairs of mammæ are supplied with blood from the anterior abdominal artery.

Through this reasoning we are able to account for several interesting facts:—1st, That aborting at an advanced period of gestation, or premature parturition will not influence the secretion of milk, which will be nearly the same as in the normal parturition. 2dly, That neither œstrum nor gestation suspend the secretion of milk. In fact, these different acts draw the blood towards the posterior parts of the body, and do not, consequently, prevent its arriving at the gland. Thus, five or six days after parturition for the mare, and eight or nine days for the cow, may suffice to put them again to the male, which may be followed by impregnation without affecting the least change in the milk, either as to quantity or quality, &c.

On Typhus in Horned Cattle.

By M. Prince.

This dreadful disease has lately caused considerable alarm, and threatened agriculturists with the most fearful loss. We are informed that the typhus has broken through the quarantine which is constantly exercised by the neighbouring provinces near the Russian steppes. It first appeared among the cattle of Galli-

cia; from this province it was carried by some Podolian oxen into Bohemia, whence it penetrated and traversed Moravia. It proved the more dangerous because at first its nature was unknown. It was only in Bohemia its true character was discovered, and measures were taken to prevent its further progress. The appearance of the typhus produces everywhere the greatest sensation. Prussia and Bavaria armed their frontiers with quarantines, &c., but these are not preventives to its extension.

M. Moll, according to Swarg Kopf, reports that the five attacks of typhus which occurred in the eighteenth century caused a loss of one hundred million head of cattle. In these five attacks, it not only prevailed among oxen, but also, although with some difference in its characters, among sheep, horses, asses, and mules.

Typhus has never occurred spontaneously in France, nor in any part of Western Europe, but has always been imported from the East; from Eastern Russia, Wallachia, Moldavia, and the marshy districts of Hungary. In the last-named country it seems to be enzootic, without, however, committing such great ravages as it is known to do in other countries, where it only appears from time to time. Every time the typhus has shewn itself in Germany, France, Belgium, and Italy, it has been clearly proved that it had been imported, directly or indirectly, by cattle from the above-named countries, which may be justly considered as the hot-beds of this epizootic. However true this last assertion may be, it leaves untouched the difference which divides authors on the origin and cause of typhus. Much is yet wanted before all will agree with M. Moll in assigning to this malady certain localities, which he designates as their perpetual hot-bed, and as being always the point from which it starts.

There is an opinion in direct opposition to this; namely, that which assigns, as the cause of typhus, an inherent predisposition in the organisation of the different breeds, at the head of which are placed those of Hungary, Dalmatia, and Eastern Russia, &c.

[This paper is much abridged, as it principally consists of a long disquisition on the origin and cause of typhus, carried on between M. Moll and M. Prince, and which would not be of general interest to the English reader. M. Prince, in support of his view, quotes a letter of M. Verheyen, Professor at the Veterinary School at Brussels, which we translate.]

"The contagious typhus developes itself primarily in one breed of cattle, those of the steppes. Sometimes the morbid phenomena are so little marked that one might doubt whether any disease exists in them; nevertheless, they communicate the contagion wherever they go. In Russia one hundred and fifty thousand head of this cattle travel every year on the high roads to Moscow and St. Petersburgh, and every year the typhus prevails in the villages on these roads. Prussia has established on the Russian frontiers lazarettos, in which these droves, with their conductors, are compelled to perform a quarantine of twenty-one days before they are admitted into the interior of the country.

"It seems that the cattle often leave the steppes in good health, and that the disease does not prevail in the country; but having an innate predisposition to contract it, any exciting cause, which in an individual of another breed would have produced a different disease, will in the breed of the steppes produce typhus. In all the wars in which the northern Powers have taken part, the typhus has always been their companion, because their provision grounds were always supplied with cattle from the steppes."

On Dropping after Calving.

By M. Fischer, *Veterinary Surgeon at Essingen* (*Luxemburg.*)

M. Fischer states that at the commencement of his practice he was frequently called upon to treat a disease which attacked cows after parturition, and which he mistook for metritis, or metro-peritonitis; but from the number of fatal cases, and the autopsiæ he made, he was convinced that it was a different disease. We will give some of the cases, as related by M. F.

On the 26th of October, 1842, I was sent for to attend a cow that had calved the day before, and which I found in the following state:—She was lying down on the right side, in a complete state of prostration; she had lost the use of all her limbs; the head was bent over the scapulo-humeral angle, and resting on the ground; the skin, ears, &c., were icy cold; the muzzle dry and cold; the eyes, drawn within the orbits, were half closed, and insensible to the light; the conjunctival membrane was pale;

the mouth cold, with an increased secretion of saliva; the pulse small and weak, and ranging from 90 to 100; the contraction of the heart oppressed, and no alvine evacuation had been perceived that day. I withdrew from the rectum a large quantity of dry black fæces, having an offensive fœtid smell.

Premonitory Signs.—I had seen this cow six days before, apparently in a state of perfect health. She was of the Birkenfield breed, ten years old, in good condition, large frame, and had calved on the previous day without difficulty. The fœtal membranes also had come away. She had more milk than the calf could suck, and it was only on the following morning, the day of my visit, that she was perceived to be off her appetite, her eyes watering a little, the lacteal gland soft, and the secretion of milk entirely suspended. She had lain down and got up twice without much difficulty; but when it was found that she was unable to stand, the owner was afraid that she was attacked with a disease well known and much dreaded by all the owners of cattle.

Diagnosis.—I was convinced by several analogous cases on which I had been consulted, that it was neither metritis nor metro-peritonitis I had to deal with. The autopsia of several animals that had not been medically treated left no doubt on my mind in this respect. I was also aware that the termination of this disease was, in nearly all cases, fatal, and was considered to be such by the best breeders, who designate it by the name of *calf fever;* but they often confound it with metro-peritonitis, complicated with paralysis, which sometimes occurs after calving, and of which I have had some cases.

Treatment.—As the animal was in good condition, eight pounds of blood were taken from the jugular vein, and alteratives were administered, although little hope was entertained of the recovery of the patient.

Towards night the animal began to shake her head violently, letting it fall afterwards into its former position, as if unable to move it, and she died about one o'clock in the morning.

Autopsia.—I found neither inflammation of the uterus nor of the peritoneum, nor any other lesion, with the exception of about half a litre of serum in the pleural cavities, and slight inflammation of the leaves of the third stomach. The mucous membrane of the

intestinal tube was discoloured, and the excrements contained in the rectum hard and dry.

M. Fischer further remarks, that this disease is not mentioned by any of the French authors, while it is very accurately described by the German, in whose works it is always associated with metritis and metro-peritonitis, but as a distinct disease. Much later, however, M. F. has met with an accurate account of it in a work written by a celebrated French cattle-breeder, Felix Velleroy, under the name of "Fievre Vitulaire." M. Brilhouet, veterinary surgeon at Galcon (Gironde) has described a disease, without giving it a name, which attacks cows after parturition, the seat of which he has placed in the brain, and which he thinks is confined to the race Bretonne. M. F. finds great analogy between this and the disease he has described.

M. Baumeister, Professor at the Veterinary School at Stuttgard, gives the following definition of this disease:—It is a peculiar fever, of the nervous and inflammatory kind, which attacks cows in the first few days after parturition. It is rapid in its course, and of an uncertain issue, in spite of the most active and well-devised treatment. It never attacks cows that have calved with great facility. The author seeks for the cause, the same as Rychner did, in the sudden disemburthening of the animal economy of a great load to which it had been accustomed. He avers, and with some good reason, that this state of things must sometimes cause a considerable derangement of the vital functions, particularly in the circulatory and nervous systems. The malady makes its appearance from the first to the third day after parturition: some veterinary surgeons speak of having observed it from the fifth to the sixth day. Its invasion is always sudden and violent; so much so, that in the course of an hour the disease has attained its greatest degree of intensity. It is frequently ushered in with shivering, soon after which all the vital functions are perverted, or altogether cease. The pulse is small and accelerated, and this in proportion to the progress of the disease, until at last it becomes altogether imperceptible. The contractions of the heart also become insensible. According to M. Bell, veterinary surgeon, the respiration furnishes a pathognomonic symptom (which we have also observed), namely, it is exceedingly slow

from the beginning, and becomes still slower as the disease advances; but at this stage it is performed with a jerking movement, accompanied with a peculiar plaintive sound. The skin, when the hair does not hide it from the sight, is always pale; the muzzle dry and cold, and the eye insensible to the light, the pupil being dilated. In five cases out of eleven, I have noticed the profuse watery discharge from the eyes, mentioned by authors. In all, the different organs have lost their sensibility; the animals soon lie down, the decubitation being peculiar to the disease, namely, the neck bent over the shoulder, and the muzzle on the ground. In the majority of cases the mouth is filled with frothy saliva; grinding of the teeth is heard from time to time; there is never any inclination to drink; the alvine evacuations are in general dark-coloured and hard, rarely (I have seen it in only one case) is diarrhœa present. By auscultation we perceive that the intestinal motion has ceased before the disease has reached its crisis. An extraordinary prostration of the vital powers, and an insensibility to surrounding objects, are characteristics of this disease: the globe of the eye may even be touched without the least sensation being evinced; if the head is raised, it falls back to its former position, like a dead weight; and enemas administered return by their own gravity. Lastly, the pulse becomes imperceptible; the mouth icy cold; the animal makes a few convulsive movements, and then dies.

The duration of this disease is in general from one to three days; sometimes, however, it may continue till the fifth day. The nervous symptoms are always the most marked, and the reaction on the spinal marrow in particular is characteristic. Some authors have described a variety of this disease, in which the brain is more affected, and the convulsions are stronger. I have never seen this form.

I have never observed this disease in the mare. Some veterinary surgeons, however, have reported cases, but they are of rare occurrence.

Causes.—A certain predisposition to this disease cannot be denied, both in fat and in more or less delicate cows. I have never witnessed it in lean cows, nor after the first or second calving. In common with M. Bell, I have never met with it except in those cases where parturition has been quick and without difficulty, and the cows were good milkers.

There is, however, another cause, which must have some influence, although its mode of action is unknown, since this disease is met with more frequently at certain periods than at others. Thus in April, 1845, I had six cases, while in the latter half year of 1844 I had not one case. The attacks of this disease are more frequent when cows are constantly confined to stables or sheds, and the air is vitiated. As an occasional cause, we may accept the provender being too exciting, or given in too great quantity shortly before parturition takes place; but principally, and according to Professor Rychner, the too sudden vacuum caused in the abdominal cavity is the general cause.

The termination of this disease is almost always fatal. As curative means, some authors prescribe the use of antiphlogistic agents; others that of diffusible stimulants; and MM. Gesker and Pilger adopt the antispasmodic. Baumeister contends that antiphlogistic treatment is always destructive in this disease. Bell says that he has obtained favourable results from the administration of the potassio-tartrate of antimony, given in mint infusion. M. Villeroy recommends us not to lose much time with, in the majority of cases, useless treatment, but to recommend the proprietor to dispose of the patient while she is yet of some value. I treated one case successfully with the powder of nux vomica, given in an infusion of camomile, and repeated every six hours until six doses had been exhibited. The convalescence of this patient lasted fifteen days, during which time there was great loss of power in the posterior parts, which was removed by irritating frictions on the spine; but this treatment, in several other cases, has not realised my expectations.

Autopsia.—The pathological anatomy in those animals that die of this disease is not always the same, with the exception of the traces of parturition in the organs of generation. Sometimes no lesions are found; at other times slight traces of inflammation can be detected on the peritonium, but never true signs of peritonitis. In some animals, to which I have administered calomel in large doses, I have found slight traces of inflammation on the mucous membrane of the duodenum. One necroscopic character most constant in this disease is the dryness of the ingesta contained in the third stomach, which presents the same appearance as in cases of indigestion of this viscus. In two cases only have I found this

peculiarity wanting. I have carried my investigation to the great nervous centres in two cases, but have not observed any morbid alteration.

[The English veterinary surgeon will have no difficulty in recognizing in all this that disease which is usually called puerperal fever, although not a correct cognomen, which proves so frequently fatal, and difficult to combat, and on which but little light is thrown by the description here given.]

On Diabetes in the Horse.

By Professor Delwart.

Diabetes is a disease the principal symptom of which is an undue secretion of urine. This fluid is limpid and sweetish, and expelled with considerable force, and it is not long before this superabundant secretion affects the organism; and, subsequently, loss of condition followed by marasmus and death.

This malady is sometimes attributed to chronic inflammation of the kidneys, to hypertrophy of the same organs, and to irritation set up in them, by which their secretory power is augmented. These different opinions as to the nature of the disease have led to as many modes of treatment, varying from the most abundant blood-lettings and the lowest diet to the use of the most energetic tonics and highly nutritious food; all having been employed with more or less success.

M. Faber relates two or three cases cured by the administration of cantharides.

Case I.—In 1839 a gelding, belonging to the administration of the messageries, was brought to the hospital of the school to be treated. I found the following symptoms present:—an abundant flow of clear insipid urine, which was evacuated every five or six minutes, and with great force. This state had already existed for ten days. The patient was low, with great prostration of strength—dry skin—staring coat—thirst unquenchable—mouth dry—pulse small and wiry—the excrements small and hard, and expelled with

difficulty. The quantity of urine voided in twelve hours was from thirty-five to forty litres. The great debility and the rapid waste led me to fear a fatal termination.

The state of this patient seemed to me to be beyond the powers of medicine to restore; and I, therefore, decided on trying an experiment which had once been successful on a glandered horse that was affected with diabetes. I prescribed creasote f℥ij, given in two litres of ferruginous water. In the course of the day the animal drank six large pailsful of water, in which hot bars of iron had been cooled, with six litres of bitter decoction. This treatment was seconded by a generous diet.

On the following day no marked change was apparent, but I fancied that the flow of urine was not quite so abundant: the same treatment was adopted.

On the third day the quantity of urine was diminished—the appetite was good, although the mouth was much excoriated by the administration of the creasote, which was now omitted, the ferruginous water with the bitters being continued, with the addition of pot. carbonas ℥ij. This treatment was continued for four days longer, after which the animal was able to go to gentle work.

Case II.—In the month of September, 1840, I received into the infirmary a gelding of large size, seven years old. I was informed by the groom that, three weeks before, he had noticed the animal frequently staling when in the stable, and that he daily lost condition. In fact, the horse was thin, dull, and disinclined to move—the coat was staring—the visible mucous membranes pale—the mouth dry, and excessive thirst present, but the appetite was tolerably good. The pulse was small and slow—the excrements hard, and voided in small quantities—the urine, clear and limpid, was from twelve to fifteen times more in quantity than in health, and voided with considerable force. This last symptom left no doubt on my mind that it was diabetes, and the treatment was directed accordingly.

The day after the animal's admittance into the hospital I ordered him six pailsful of water, in which heated iron bars had been cooled in the morning, and creasote f℥j was given in a litre of water in the afternoon of the same day. Gentian-root powder

and carbonate of soda, made into balls, were given three times a-day.

On the fourth day the urine was less abundant—the pulse stronger—the thirst less—and the appetite good. The same treatment was continued.

Fifth day, the secretion of urine still less, but mastication is difficult, owing to the soreness of the mouth, produced by the medicine. Farinaceous food was ordered, and the creasote omitted for a day, the other treatment being continued.

On the sixth day considerable amendment was perceptible: the secretion of urine was less by one-half—the pulse had become of its healthy character—the skin moist—and the mucous membranes more healthy in appearance. The treatment was ordered to be continued, with the exception of the creasote, the dose of which was reduced to one-half. This was given until the 11th, when it was discontinued altogether, the animal exhibiting all the indications of returning health; and on the fifteenth day after his admission he was discharged perfectly cured.

Case III.—An old cart-horse, affected with diabetes, was received into the infirmary of the school in 1843. He was in a debilitated and even dangerous state. The information obtained from the owner was, that a month ago he perceived that the horse staled very much, but he attributed it to the oats being a little mildewed. Having changed the food, and the urine being still voided in large quantities, a few days after the horse was bled by a farrier, but the malady continued its progress until the animal was altogether unfit for work.

The same treatment was employed in this case as in the former ones, and here, too, it was followed with the same success.

Professor Delwart further observed, that he could not let the present opportunity pass without drawing the attention of the profession to a new disease of the urinary organs recently described by M. Verheyen, and which he (M. Verheyen) had designated Albuminaria, on account of the great quantity of albumen found in the urine. Struck with the similarity of symptoms, Professor Delwart collected and examined the urine of the horse (the third case of diabetes), and he found on analization that it contained a

large amount of albumen. It would, he says, be an error in diagnosis to mistake albuminuria for diabetes; but he would not attempt at present to solve the question, whether they were one and the same disease, but wait until farther researches enabled him to do so more satisfactorily.

THE VETERINARY MEDICAL ASSOCIATION.

FEBRUARY 4, 1845.

The PRESIDENT in the Chair.

THE following presentations to the Library were laid on the table:—

"Researches into the Structure and Development of a newly-discovered Parisitic Animalcule of the Human Skin—the Entozoon Folliculorum," by the Author, Erasmus Wilson, Esq.

"Recherches Experimentales relative a l'Action des huiles Grasses sur l'Economie Animale."

"Découverte d'un nouveau Muscle dans de Cheval," both by the Author, M. A. Thiernesse; and

The "Journal Vétérinaire et Agricole de Belgique," in exchange.

MISCELLANEOUS OBSERVATIONS ON THE ACTION OF CERTAIN METALLIC COMPOUNDS ON THE ANIMAL SYSTEM.

By Mr. GEORGE ROBB.

Arsenic.—FROM experiments I have instituted on animals, and from those that I have seen opened and examined which had been poisoned by arsenious acid, I do not believe that what is called the local effects of this poison—namely, its action on the stomach and intestines—is the cause of death. The post-mortem appearances, it is true, generally exhibit the remains of what had, most probably, been acute inflammatory action in the mucous coat of the stomach and intestines, which was soft and easily detached, with sometimes an engorged state of the vessels; but I never observed that these appearances were in any way propor-

tionate, or had any distinct relation to the degree of fatality which attended the particular case; on the contrary, I observed that some of these animals, especially two cats, which had so far recovered that they would have lived, but which were purposely destroyed, exhibited upon examination all those appearances in a much higher degree than most of those which had died of the effects of the poison; and that some of the latter exhibited scarcely a trace of diseased action having existed in any of the viscera. Though I believe it to be very common, I never saw any thing which could be called ulceration, except in some fowls, and I think the nature and quantity of the food in their crops had some connexion with it.

From these circumstances, it is obvious that the fatal effects of this poison are to be attributed to its entering the system and forming combinations there, converting portions of that organism, which before was adapted for carrying on vital functions, into compounds possessing no vitality, changing the constituents of the animal economy into forms of matter which have no place in living systems, as the neutralization of the acid or oxidation of the plates in a galvanic battery would render these unfit to perform their functions in that system, cause the cessation of action, and consequent death, if I may be allowed such a term, of the apparatus.*

* I do not mean, by this comparison, to infer that the vital force is identical with the galvanic force. No; the laws which govern these forces appear distinct, and their phenomena, which is all we know about either of them, also appear to be distinct. No series or arrangement of plates has ever produced all the phenomena of life. If, then, these forces differ in their phenomena, they differ in all that is substantial; for, the phenomena being abstracted, nothing remains but the force in a state of rest, inappreciable to our senses; or the hypothetical fluid—the fluid, the existence of which convenience and the imperfect development of human understanding has induced philosophers to assume merely by hypothesis. Indeed, it will always be most convenient to distinguish these forces by different names; and in the present state of our knowledge, it is quite unphilosophical to assume their identity. They have, however, this common resemblance, that, to a certain extent, they each can supply the place of the other, and they each depend upon a certain arrangement or system of matter, apart from which they have no perceptible existence, and which, when materially disturbed, their phenomena cease to appear. Thus it is, that when a foreign substance enters the animal body, combining with any important organ, poisoning, or death of the whole system, is the result.

The local action of arsenic, or its effects upon the coats of the stomach and intestines, may be imagined to arise frequently from the attempts of the system to throw off the poison through the medium of the mucous membranes—a view of the question which is supported by the fact, that the diseased condition of these viscera is, in many cases, even greater when the poison has been applied to an external wound, or introduced under the skin; in which cases there could be no action on the mucous membranes but what arose from some such elimination of the noxious body, or from excessive secretion of a morbid and irritating nature, in the attempts made to expel the poison.

Barium.—In their action on the animal system, the salts of this metal are analogous to arsenious acid; or rather, I should say, the latter, though an acid, resembles in its action on the tissues certain metallic bases of which baryta is one, copper, lead, &c., being the others. They combine in the ratio of their equivalent numbers with the organic molecules, causing disorganization proportionate to the peculiar energy with which each is characterized in its affinity, giving rise to the formation of new tissues, which are incapable of life and growth, and which, though still entitled to the name of organic, can no longer be considered as organised, or admitting of the passage through them of the circulating fluids. This tissue no longer arranges itself into an elaborating apparatus. It becomes a mere chemical compound, not an organ; but, as with every description of poison, it is to their action on the fluids that we must look for the most fatal consequences of these metals; becoming infiltrated into the blood, by which vehicle they exercise their most fearful ravages, and in such cases they cause the greatest functional disturbance, acting in the most minute quantities, and within the shortest space of time. The compounds of this metal (barium) have been employed in veterinary medicine. In some recent numbers of *The Veterinarian* are records, by Mr. William Percivall, of cases of glanders in the horse having been treated—some successfully—by the chloride of barium. In medicine, the salts of this metal have been employed as tonics, chiefly in scrofulous diseases. On account, however, of their virulently poisonous properties, they require to be administered with extreme caution. Being much more soluble, they are poisonous in smaller doses than arsenic. Some of the horses treated by Mr. Percivall died

from their effects, one very suddenly; shewing, as that gentleman observes, in what an unexpected manner death occasionally happens during the exhibition of this poisonous mineral.

The carbonate, which is quite soluble in the acid of the stomach, is the most poisonous of all the salts of barium, from the smaller equivalent number of its acid,—a circumstance which should not be overlooked by the practitioner. Thus, if we compare it with the nitrate, the difference in amount of metal is very considerable, 100 grs. of the carbonate being (in round numbers) equal to as much as 131 grs. of that salt.

When poisoning has been caused by the exhibition of a metallic compound, should the prepared liquid, after having been acidulated, give no precipitate with sulphuretted hydrogen (which test should always be applied first) the probability will be that barium is in the solution. If, then, a precipitate be obtained by the addition of diluted sulphuric acid, which does not re-dissolve on the addition of a free acid, it is certain, if a metallic body be present at all, that it is barium. The metal strontium would answer to the same tests; but it is not poisonous. The experimenter should satisfy himself, however, by completing the analysis, and having recourse to the usual tests for discriminating between these two metals.

Copper.—The therapeutical effects of the salts of this metal are referred to their action as tonics, giving power and vigour to the body when it is debilitated and relaxed, and this, together with their indirect action as antispasmodics, allaying irregular muscular contractions, and their astringent and styptic operations, is the extent to which, so far as I know, their medicinal effects on the animal system have been traced. But we must not stop here. From the recent researches of Messrs. Danger and Flandin, it appears that the exhibition of the salts of copper is attended by a copious bronchial flux. "This symptom (they say) is not constant, which is perhaps the reason why it has not been remarked; but it is easily produced by placing the animal in the sun or near a fire. It lasts for some time, and in some instances appears in the intermittent form." And these chemists, it would appear, have discovered that in this liquid—this bronchial flux—the greater proportion of the copper which has entered the system is to be found, and that "a few drops alone are sufficient to prove its existence."

The conclusions I would draw from this fact are, that the salts of copper have a specific action on certain diseases, and that their effects are not limited to tonic and antispasmodic powers, or to their astringent or styptic operation. Thus, in that fatal disease of young cattle which is characterised by the existence of immense quantities of worms in the bronchial passages, the removal of which is so difficult, and at the same time so essential to the safety and recovery of the animal, they would probably prove an efficacious remedy, by causing an increased action of the exhalents of the bronchi, and poisoning the secretions of the membrane to which these parasites are attached, and upon which they feed. Whether this phenomenon may or may not extend to that portion of the mucous membrane of the air-passages lining the nostrils, is matter for experiment; but certainly the disease called nasal gleet in the horse is often successfully treated with sulphate of copper.

Sulphate of copper has likewise received the credit of having effected the cure of glanders; but to what extent it has been assisted by nature, it is not easy to say; nor would I consider it a settled point, as to what degree of confidence is to be placed in the correctness of his diagnosis whose reputation stands highest in the cure of this intractable disease. If, however, the salts of copper have effected cures, I imagine it cannot be referred to their tonic influence; for there are plenty of medicines besides sulphate of copper that produce tonic effects on the system that will not cure glanders. How, then, does this agent effect a cure? Certainly by its specific therapeutical action, that specific therapeutical action having a relation to its physiological action.

Lead.—From the researches of these chemists on the effects of this metal on the animal system, it appears that in cases of acute poisoning, one symptom they observed in dogs was vomiting of a white frothy liquid, containing carbonate of lead, which was formed chiefly in the mouth by the subacetate—the salt they employed—being brought in contact with the carbonic acid gas expulsed from the lungs. This is the only characteristic symptom in cases of this kind; and when once seen, "will enable the physician (they say) to guess pretty exactly as to the nature of the poison." I would, however, recommend, that upon no occasion should the analysis of this liquid be omitted, as, instead of lead, it might contain barytes, the carbonate of which, under such cir-

cumstances, would be precipitated quite as readily as the carbonate of lead. But, as they farther observe, it must not be forgotten that the aliments contained in the stomach may produce changes in its colour, and that it may be black, when from disease or other causes sulphuretted hydrogen is generated in the stomach.

When the poisoning has been produced *gradually*, the tongue and interior of the mouth, with the teeth, become black from the presence of the sulphuret of lead. These are singular phenomena, and when taken with the other symptoms of poisoning by this metal, there cannot be much difficulty in the diagnosis.

It is stated by Messrs. Danger and Flandin that "M. Roard, director of the manufactory of Ceruse, at Clichy, near Paris, informed us (them) that when the workmen, after their daily labour, took care, by his advice, to cleanse their hands with a brush and some soap, they were never affected with the painful colics which persisted sometimes a considerable length of time with their comrades who turned a deaf ear to his warnings, and neglected taking the necessary precautions." And they very reasonably consider this a "probability, if not a proof," of the absorption of this poison by the skin. This, I would observe, proves likewise the truth of the proposition, that diluted sulphuric acid acts as an antidote to poisoning by lead, even after that substance has entered the circulation, by causing the decomposition of the compounds which that substance forms with the constituents of the animal system; for it has now been ascertained, and is generally known, that the disease called painters' colic, to which the workmen in the manufactories of white lead are liable, is prevented by their taking the sulphuric acid-lemonade (a solution of sugar acidulated by sulphuric acid.)

Localization of Poisons.—In the Memoirs lately brought before the French Scientific Societies by Messrs. Danger and Flandin, these chemists and physiologists have exhibited results which shew that, in cases of poisoning by the metallic compounds, the various metals are not met with in equal quanties in the same organs; that some are not met with at all in the organs in which others are found; and that they are not carried, as has been supposed, to all parts of the system, but have a power of fixing upon particular

organs as their destination, or a peculiar susceptibility to be attracted by such. Thus, copper must be looked for in the liver, in which organ (a very singular fact) the whole of the poison absorbed, except what may have already been eliminated, is to be found. Lead is to be sought for in the alimentary canal, the liver, kidneys, spleen and lungs; not in the heart, brain, bones, muscle, nor in the blood. Antimony is found in several of the viscera; arsenic in almost all. Farther; while antimony "is eliminated from the economy in the urine with great rapidity," copper, "after having been absorbed, is thrown off, not by the kidneys, but by the pulmonary and digestive mucous membranes. Lead, though not rejected with equal rapidity as antimony, is eliminated from the system by urine, rather than by the insensible transpiration."

I regret I cannot go minutely into this subject, for I have not seen the papers on that part of it which refers to arsenic and antimony. I have just alluded to it, however, in this miscellaneous essay, on account of its being a subject of great interest, and new.

To resume: Should this discovery of the localization of poisons be confirmed, it will tend materially to facilitate and abridge the labours and researches of the chemist and physiologist in cases of poisoning. The whole body need not be analysed, but those organs or parts only which, to the exclusion of all others, ought to contain the poison. The mixing of a part which contains the poison with parts which contain none, or even a small quantity, renders the discovery of it less sure; for it is easier to detect the poison in a small than in a large quantity of organic matter. Thus, should the poisoning agent be copper, he has to search for it only in the liver, and, according to the authorities abovementioned, it is there so abundant that "1·764 oz. to 2·117 oz. of that organ is sufficient to furnish positive proofs" of its existence. In a soluble form it cannot be separated by cold water from the parenchyma of this viscus; but ere it can be dissolved the parts require to be submitted to long and rapid ebullition. Hence, in cases of poisoning by copper, the dead body might remain for a long time under water, and yet the chemist would discover the metal in the liver. Simple washing with cold water, however, will remove the

small quantities which have been imbibed by the capillaries, or the mucous membranes of the stomach and intestines; but which are not in a state of chemical combination with the tissues.

Poisons have been known to be introduced into the bodies of men and of animals after death. In such cases the poison either remains on the spot where it was deposited, or it is imbided and carried gradually and indifferently into all the organs. The fact of the localization of poisons would remove all difficulties in such cases. The circumstance of its being met with in parts where, in cases of poisoning the living body, it is never found, would be enough to shew, if confidence is to be placed in the uniformity of Nature's laws, that the individual had not been poisoned.

The experiments of Messrs. Danger and Flandin on the viscera of children and adult men and women, on the blood, and on the lower animals, have led them to the conclusion that neither copper, arsenic, lead, or any unknown metal, exist in the body in its normal state; so that they are at variance with the opinions in the last edition of M. Devergie's "Treatise on Legal Medicine," which, I believe, contains tables shewing the proportions of lead and copper in the human body. If this position be a true one, it will have the advantage of depriving criminals of the plea of the presence of these metals in the normal state of the system. For although there be a difference between what has been laid down as the normal quantity and that found in cases of poisoning sufficient to preclude the possibility of error if the analyses have been properly conducted, yet the spirit of the laws, which in all matters of doubt tends to allow the benefit to the prisoner, is often, by the eloquence and ability of counsel, forced in that direction far beyond its legitimate boundaries.

It appears to me highly probable that their views in this respect will be confirmed by other physiologists. It is true, the opinions of Messrs. Devergie and Hervey, "that copper, lead, and probably another metal form constituent parts of all the organs in man and animals," were supported by Professor Orfila; but some of the experiments made by him, and the conclusions deduced from others on this subject, are not, I conceive, of so satisfactory a nature as those of Messrs. Danger and Flandin. Several chemists have doubted the correctness of Messrs. Devergie and Hervey's disco-

very; and M. Chevreul, it appears, now claims the priority of the assertion, that copper does not exist in the human body.

In one experiment Messrs. Danger and Flandin "mixed with the food of a strong healthy dog a certain quantity of sulphate and acetate of copper, gradually increasing the dose until the animal was enabled to take gr. ii daily without appearing incommoded. During the 273 days that the experiment lasted, ʒviss of the poison was administered—enough to destroy fifty dogs of the same size. The most scrupulous investigation of the urine during life, and of the whole body (viscera, muscles, and bones) after death, did not furnish the least particle of copper. It is necessary to state, that for two days previous to the dog being killed the copper had not been given, and that before operating on the intestinal canal the parts were carefully washed. At first the animal grew thinner, but he soon appeared to get accustomed to the poison, and then not only recovered his former health and spirits, but even grew fatter."

The discovery of the localization of poisons, and the different means which Nature takes to expel them from the system, will lead to the knowledge of the best modes of treatment in cases of poisoning, and of promoting the elimination of those substances with which the animal body may from various causes become charged.

Analyses.—The presence of organic matter having the effect frequently of altering the action of tests on inorganic bodies, various means have been adopted, and processes described, with the view of obtaining accurate results under such circumstances.

According to these chemists, whom I have so frequently named, the most efficacious is, to carbonize, by adding to the matter to be examined, "one-third of its weight of sulphuric acid; expose the residue (after evaporation) to a red heat; reduce to a fine powder; then (if the metal be copper) moisten with sulphuric acid, and boil until nearly dry: finally, add a sufficient quantity of water to dissolve the salt of copper." On this liquid they tried their tests, and they state that they discovered one hundred thousandth part of the metal. If the metal be lead, hydrochloric acid should be employed for effecting solution, and aqua regia if it be tin, gold, &c. When several metals are mixed together, they must, of course, be separated by the ordinary processes of chemical analysis, and then the characteristic phenomena, by which each is most strikingly distin-

guished from every other substance, may be exhibited by solution and the application of the proper tests.

For the detection of arsenic and antimony the above process for the fixed metals would require to be modified. It would be enough, after evaporating to dryness, simply to treat the residue with concentrated sulphuric acid, so as effectually to char the organic matter; a clear and transparent liquid would then be obtained, upon which the usual re-agents would give satisfactory results. In case Marsh's apparatus should be employed, there is a modification of it recommended by our Lecturer on Chemistry, Mr. Morton, whereby he obtains nascent hydrogen from the decomposition of water by introducing into the metallic solution the poles of a galvanic battery. By this beautiful improvement the introduction of zinc, and consequent contamination of the liquid under investigation, is avoided.

Mr. Morton.—I have with much gratification read this Essay by Mr. Robb: it is full of interest, and replete with instruction. Fully do I agree with the author in his assertion that arsenic does not always, by its local action merely, cause death. Poisons, as a class, have a twofold influence; namely, local and remote: but that loss of substance or erosion does not generally ensue upon the exhibition of arsenious acid as a poison, is a statement with which I confess I do not so readily concur.

Mr. Robb.—I certainly never observed any solution of continuity of the mucous membrane.

Mr. Morton.—In every case I have examined, corrosive action has been visible. Here, then, we differ; but we agree in considering that this is very often altogether an insufficient cause of death.

The localization of poisons I consider a subject of more than ordinary interest; and this remark may be extended to medicines generally; for were we acquainted with the peculiar tissue or organ on which each agent is capable of acting, we have at once a key to unlock all the mysteries of therapeutics. There is another circumstance which may not be altogether foreign to this subject, namely, the specific action of medicinal substances. Did we rightly know—had we ocular proof of—the desired effects having been

brought about, we should then be able so to apportion our dose as to combat disease more effectually, and also with the least expense to the animal economy. With the peculiar effects of some few medicinal substances we are conversant. Thus, we know that mercury in all its forms will produce salivation; that digitalis, under certain conditions of the system, will cause an intermittency of the pulse; and belladonna a dilatation of the pupillary opening of the eye; and whenever we see these results brought about, we are warned either to withhold our agent for a time, or to give it in smaller doses or at longer intervals, as may be, this depending on the disease we are desirous of overcoming. These, then, become criteria by which we are to be guided; and could we go through the whole of the materia medica in the same way, doubtless it would be advantageous.

As I have adverted to the action of the compounds of mercury, I would observe that, from some experiments lately instituted by Dr. Osterten, he found that this metal, in common with many others, accumulates in the liver principally, although it is met with in the blood and other organs. It is not, perhaps, a matter of much wonderment that, in the liver, these agents should be so frequently found, when we reflect that the absorbents empty themselves into the venous system, and venous blood, in very considerable quantities, passes through this large excretory gland. The salts of copper may likewise be detected in the liver, although large quantities are expelled with the excrements. In like manner arsenic is found there; and in all analyses of poisoning by this mineral Orfila directs the liver to be incinerated by the action of nitric acid on it, and then the ordinary tests or re-agents to be employed.

To return: We know that the influence of the alkaloid strychnia is on the spinal cord. When a few doses of this powerful agent have been administered, it is not uncommon to find the symptoms of the disease aggravated: an extreme sensitiveness is evinced on pressure being applied along the spine, and sometimes tetanic spasms will be present. We may now be sure that the maximum dose of the agent has been attained, and by judiciously apportioning the quantity, relief, if not cure, may be anticipated.

The peculiar action of the compounds of iodine and of hydro-

cyanic acid on the animal economy is too well known to require any comment. I repeat, that our acquaintance with the specific influence of medicinal substances is a desideratum.

I believe it is possible that the effect of every medicine might, by observation patiently pursued and carefully noted down, at length be accurately known. Great, indeed, would be the benefit conferred on veterinary science by that person who shall be the first to carry out these views. The field is as yet unoccupied, for a few scattered facts alone we are at present conversant with; the honour, therefore, would be all his own. Still, it would be necessary not only to note the potency of certain agents on the healthy system, but most particularly during the existence of disease, since this often modifies the action of medicines, and sometimes determines it. Further, it is well known that certain medicines have a tendency to accumulate in or to derange certain parts or organs of the frame to the exclusion, as it were, of others. A precise knowledge of this would materially guide the practitioner in his selection of therapeutic agents, and could not but greatly modify the terminations of disease. Nor are the means of observation so rare as to present an obstacle to research. As certain painters become attached to particular tints, and all men are observed in their speech to exhibit a partiality for particular words, so most medical men have a confidence in particular medicines, which they employ often to the exclusion of every other. Thus, when an animal died that had been treated actively with some particular medicine, you would have a proper object on which to commence your observations, which, it is probable, you might be able in another case to confirm. By such means every fatal case would be made an actual experiment, and the result be of twofold importance, viewed both therapeutically and pathologically.

Mr. Robb has referred to many valuable experiments, by MM. Danger and Flandin, on the mineral poisons. The same physiologists, while ascertaining the effects of arsenious acid on sheep, found that the quantity of this substance progressively increased in the urine until the animal either died or the whole of the agent was eliminated from the system by the kidneys. On this fact M. Rognetta has advanced the theory, that this acid is comparatively harmless to ruminating animals, when given either in a solid form

or that of powder, from its being involved in a large quantity of dry food, its solution and consequent absorption being thereby prevented.

Some of you may remember an experiment instituted by Mr. Simonds with this agent on the cow. It is recorded in the *Proceedings of the Veterinary Medical Association for* 1840-41.

Both in the urine and the pleural secretion has this acid been detected by the French experimenters. On this account its use has been advocated in pleuritis in cattle and sheep, combining it with common salt, which in some way appears to check its poisonous tendency. There is a circumstance I would mention here:—I have, while experimenting, found common salt prevent the development of arsenious acid when the fluids containing it were decomposed by the aid of galvanism.

In one of MM. Danger and Flandin's experiments, twenty sheep, affected with chronic pleuritis, had an ounce of arsenious acid each given to them, and only two out of the number died,—the remainder got well in a week; hence, they have not hesitated to advocate the employment of that agent in this disease.

I do hope that the introduction of this paper will stimulate those present to investigate for themselves. It at all times affords me pleasure when I am able to assist my professional brethren in their duties; but I cannot say it is gratifying to my feelings, when my former pupils solicit my aid from a seeming disinclination for a study in which they are, or should be, as proficient as he who was once their teacher. I believe the time is come when the veterinary surgeon should carry on his own analyses; when he should appropriate to himself the credit of demonstrating the existence or non-existence of poison in the animal system. To need help in such a process is to acknowledge a deficiency which, I fear, not only injures the local reputation of the individual, but likewise tends unjustly to impress the public generally with a low estimate of the scientific attainments of the veterinary profession as a body. The process requires some care; but it is neither so nice nor so complex, in the majority of cases, but that all may undertake and accomplish it; and I therefore trust that, for the future, none will avoid it. The labour of the investigation must be considerably lessened by a consideration of the localization of poisons, to which I

have already adverted. Certain organs will, therefore, require to be particularly examined, and among these especially the liver and the bladder, or, rather, the contents of the latter.

Mr. Robo has favourably noticed my mode of detecting arsenious acid; but he has not referred to the two forcible objections against the employment of Marsh's test; namely, that both zinc and sulphuric acid, when commercial, often contain arsenic, and sometimes they are only with extreme difficulty procured in a state of purity. The history of the circumstance which led to my employment of the process which has been largely approved of by scientific men may not be uninteresting. It so happened that, when about to examine the contents of a stomach taken from a horse supposed to have been poisoned by arsenic, I first tested the hydrogen which was being very abundantly given off by Marsh's ingenious apparatus; and the result was, that I obtained a number of metallic films, which proved to be arsenicum. Conjecturing the source, as none of the suspected solution had been yet introduced, I sent for fresh zinc and sulphuric acid, hoping they would be pure: still Marsh's test gave proof of the presence of arsenic. Again I changed the materials, but with the same result. I now felt myself in a difficulty, when it struck me that the solution might be decomposed by other means; and hence I was so fortunate as to apply a process by which the result is placed beyond the possibility of error.

Mr. Robb has stated, that my process obviates the necessity of employing zinc. It is true, at first I only asserted that metal was, by my plan, no longer required; but then I had obtained only half the desired end; for sulphuric acid is often even more highly contaminated with arsenic than zinc is. I confess that I have found no substance conduct electricity so well as dilute sulphuric acid; but the salts of potassa are sufficiently good conductors, and thus I have done away with its use, and therefore no objection can be advanced with regard to the materials employed, galvanism being my decomposing agent.

Mr. Jekyl drew attention to the assertion made by Liebig, that lead was only poisonous in the form of carbonate; and if the formation of this in the system were prevented, or if its decomposition within the system were effected by the administration of

acetic acid, so as to produce the acetate of lead, no fatal consequences would ensue.

Mr. Morton remarked, that the same fact had been asserted by Professor Thomson; and in proof that large quantities of the salts of lead might be administered with impunity, he stated that he had given to the horse four ounces of the acetate, and one pound of the diacetate of lead, without destroying life in that animal, or producing any very marked action beyond that of a sedative.

Mr. Robb observed, that some toxicologists, among whom was Raspail, considered the acetate as the most poisonous of the compounds of lead, and inquired of Mr. Jekyll what facts had induced Liebig to make this statement.

Mr. Jekyl replied, that Liebig had drawn his conclusions from experiments made upon dogs.

Mr. Morton said, that the presence of the phosphates in the stomach of the dog seemed to render such conclusions doubtful, as the phosphate of lead, which would be then formed, was a comparatively inert compound.

Mr. Robb.—The circumstance that the zinc and sulphuric acid of commerce both frequently contain arsenic, certainly does, as our worthy Secretary observes, give rise to difficulties in the employment of Marsh's apparatus; and these difficulties are, probably, not the less experienced by the great majority of medical men, who are but indifferent chemists. I have frequently, however, found both zinc and sulphuric acid of commerce in which no arsenic could be detected by Marsh's apparatus; and even if it were not so, it is in the power of any one to provide himself with these substances in a state of sufficient purity, and no chemist who undertakes such investigations should be without them. Although, therefore, Mr. Morton's process, even in so far merely as it gets rid of the abovenamed difficulties, is a very beautiful process, and is well worth the consideration of the scientific community, yet I conceive it is still more highly to be recommended for the reasons I have mentioned in my paper, viz. that the liquid under investigation no longer becomes contaminated by zinc, even in a state of purity, which is necessarily introduced in the employment of Marsh's apparatus, but which, under Mr. Morton's plan, is altogether dispensed with. It is almost unnecessary to

say, that this improvement, which admits of the examination for arsenic without adding to the liquid metals which themselves might have been administered as the poisonous agent, is a point of great importance gained.

Mr. Ernes noticed the unfitness of the dog for experiments whence any deductions of real value to the veterinary surgeon could be drawn. Neither one class of animals nor isolated facts were sufficient to establish truths connected with this important subject; but a series of experiments are called for, and the repeated observance of effects produced on all, or nearly all, animals could alone establish the definite action of any medicinal substance.

FEBRUARY 11th, 1845.

The PRESIDENT in the Chair.

Mr. HALL gave the history of two cases of fractured pelvis in the horse, the result of the animals slipping down on the wood pavement. A similar instance was related by Mr. H. DAWS, who also exhibited a fracture of the basilar process of the occipital bone of a horse, caused by the animal's rearing up and falling backwards; and two fractured pastern bones, one recent, the other having existed for some little time, in which the attempts made by Nature to effect a reunion of parts, was beautifully shewn.

An Elaborate Essay by Mr. JEKYL was then read "ON THE ANTIDOTES AND TESTS FOR THE POISONS TO DOMESTICATED ANIMALS."

[We regret that want of space precludes the introduction of this Essay, and also some others, since it contains much valuable matter. Its consideration occupied this and the following meeting. Mr. Jekyl lucidly demonstrated the manner of applying the many tests for the different poisons, describing the chemical changes that take place, and the precautions necessary when organic fluids are being operated upon. We may recur to this subject, and give some extracts from the thesis to shew the progress that is being made in the acquirement of scientific principles by those who are about to become practitioners of veterinary medicine. Some of our readers may think that the subject was anticipated

by the "OBSERVATIONS" of Mr. Robb. Such, however, was not the case. The two essays constituted an admirable whole, Mr. Jekyl's, being an addendum, and filling up an important hiatus which otherwise would have existed.]

TUESDAY, FEBRUARY 25, 1845.

Mr. W. C. CRABBE, V.P., in the Chair.

CASE OF OSSIFIED TUMOUR ON THE PLEXUS CHOROIDES.

By Mr. COX.

Mr. Cox.—The portion of a tumour upon the table was taken by me from the lateral ventricle of the brain of a horse which died in my infirmary. The animal had been seen frequently to turn round and round when at grass, and when put to work was as frequently observed to reel. Still he was able to perform his labour, and the less attention was, perhaps, paid to these symptoms as the appetite remained unimpaired. One evening, however, when returning from a neighbouring coalpit, the symptoms suddenly became more aggravated, and in consequence of this the owner sent the horse to my infirmary for treatment. The peculiarities that presented themselves were, pulse accelerated, and to be felt only at the heart. Breathing quick and laboured. Visible mucous membranes of a purple hue. When in the paddock the animal kept turning round and round, and when the head was elevated, he fell; and after struggling for a short time got upon his legs again with difficulty. He was almost continually yawning, and sometimes the respiration was so much impeded as to simulate roaring. The sound was such as I never heard before, and so loud as to be audible at a considerable distance. The skin was wet with perspiration.

When he was first brought in, I considered him to be in a dying state, and he only lived till the following morning. I was absent from home when death took place, and by the time I returned the owner had employed a man to skin the horse, which was not only

accomplished, but the brain was likewise exposed. Within the left ventricle was found a substance which Mr. Morton has correctly pronounced to be granular, attached, and about the size of a pigeon's egg. No other part of the frame exhibited any signs of disease except the lungs, which were slightly congested.

Mr. Morton.—Analogous cases to that which Mr. Cox has favoured us by relating are recorded in the *Proceedings of the Association*. Here is a specimen, taken from the museum, of a very large tumour involving the plexus choroides, and in the same collection is another and similar one. Cases of this kind are full of interest, and although they possess no novelty, yet, as establishing the susceptibility of the horse to a particular kind of cerebral disorder, are deserving of record. They are likewise of importance, as illustrating the extent to which such a form of disease may proceed. Both the horses, from which the specimens to which I have alluded were taken, died phrenitic; but we cannot for an instant suppose that the development of the tumour was simultaneous with the manifestation of the symptoms. There is more reason to think that the deposit resulted from long-continued abnormal action, and to regard it as the growth, perhaps, of years; and, being gradually developed, it caused little derangement till some exciting cause co-operating produced those symptoms which suddenly terminated the existence of the animal. These concretions consist principally of the phosphate of lime with animal matter. Every part of the frame is subject to tumours of this kind, and, when we reflect on the composition of the brain, there is certainly no reason why this organ should be exempt from them.

Two Cases of Supernumerary Tarsal Bones.

By Mr. Cox.

Mr. Cox.—As every thing connected with the horse possesses interest to us, perhaps I may be excused for directing your attention to a circumstance which has not, I believe, been previously noticed. I have here the tarsal bones which belonged to two horses, and in each is found an extra bone, there being what, for the sake of description, I may call two small cuneiform bones in

both. Neither of the hocks shewed any symptom of disease externally; and in one of them, which belonged to a mare I treated for shoulder lameness, the cuboid and magnum are united, so that in this case the joint really possessed the usual number of bones. As illustrating a variety in conformation where none has been before observed, but where, from my having met with two specimens without searching for them, I cannot deem a circumstance of only occasional difference or very uncommon, I lay these specimens before the Association for their inspection.

On the Management of Hunters.

By Mr. E. Boddington.

The author of the Essay, after dwelling on the necessity of the educated veterinary surgeon being intimately acquainted with this subject, and the advantages that he will derive from it, proceeds to observe—

"We are not only expected to understand the nature of the various diseases to which the animal is liable, but also the causes that are in operation to produce them. That many of them are the result of the violent exertions of the field, and the sudden changes the animal has to undergo to prepare him for those exertions, I feel assured no one will be bold enough to deny. I shall now endeavour, as plainly and distinctly as possible, to give you my views upon this subject; and I hope, imperfect as they may be, they will not fail to elicit from those of you who are more conversant with it than I am, not a little information.

"I shall consider it under three distinct heads; namely, 1st, The preparation or conditioning of the hunter for the coming season; 2dly, The treatment during the season; and, 3dly, That part which affects the country veterinary surgeon more particularly—the summering or throwing out of condition.

"In the preparation for the coming season I consider that both town and country veterinary surgeons are concerned. It is no uncommon thing for a gentleman to take a horse to his professional adviser, and to say that he wishes to have him prepared for the

hunting season. Under such circumstances, you should first make a few inquiries as to the manner he has been kept during the summer: neither should his age be forgotten by you, likewise whether he may have been in the grass field, having only that food which it produces, or in the bay of a barn, or a loose box, there being allowed corn with his green meat. Upon these, and other similar inquiries, of course, will depend your after-mode of treatment. It will be right also to examine the horse as to soundness, so that, should any disease exist which in your opinion would be likely to prove detrimental to him in the field, you can inform your employer of it. Should none exist, you can at once proceed with your treatment. This, perhaps, will generally be about the last week in June: at least, in my opinion, it should not commence later than this. And whatever may have been the mode of the animal's living previously, the change you are about to produce upon him must be gradual. The state of the feet should be the first thing looked to; and here a great deal of care will be requisite. It is impossible for me to lay down any fixed rule as to the method of shoeing, as this must, of course, depend upon various circumstances. Do not forget to well examine the frog, as it is not unlikely that thrush may exist: if so, this, of course, must be attended to. The stable should by no means be a warm one, neither should clothing be allowed at present; the grooming, too, should simply consist of the employment of a whisp. The change of diet also must be most carefully and gradually effected. If the grass field has been his summer abode, and its produce alone his food, his diet for a fortnight or three weeks should consist of a mixture of hay and grass, or green clover, as may be most convenient, with small quantities of bran and oats. You may now administer a gentle dose of some cathartic agent, say aloes ʒiv, previous to any further change, which will consist in moving him to a warmer stable or a loose box (the latter is always to be preferred), allowing better grooming and better keep, which may be as follows,—old hay six pounds, from eight to ten pounds of old oats, with ten or twelve pounds of bran and chaff per diem. This quantity should be given at three or four feedings. From one to four hours walking exercise should also be allowed every morning *early;* after which he must be well groomed, and then left loose if in a box: if in a stall, care should be taken that the head be let down, for

grooms are too apt to keep horses tied to the rack, to prevent them from dirtying their quarters, and consequently to save themselves the trouble of cleaning them.

Much importance is to be attached to the exercise being given early in the morning, as then there is the whole of the day for the animal to rest; in fact, when he has had his feed in the middle of the day, his head should be loosed and the door locked until the evening. This plan may be continued for a fortnight or three weeks; when, perhaps, it may be advisable to administer a second dose of cathartic medicine, say aloes ʒv, combined with calomel ʒj; after which the last change of treatment may be proceeded with as follows:—His clothing should now be warmer than before, and the same continued throughout the season. The temperature of the stable should at no time exceed 64°, it being at the same time well ventilated. The food may be increased to six or eight pounds of hay, from ten to twelve pounds of *bruised* oats, and from six to eight pounds of split beans, per diem. The corn should be old and dry; and I would strongly recommend that the oats be English, in preference to either Irish or Dutch: the former (as sent into this country) are generally full of dirt and small stones, the latter very apt to be heated and fusty. The exercise must now be more active; and a short canter may be given once or twice a week, with the usual walking exercise every morning, and this increased gradually until within a few weeks of the approaching season. If it be found necessary, clipping may be had recourse to, previous to his having what is termed his sweating gallops once or twice a week, as may be thought proper, and which should very gradually *increase in distance* and *decrease in time*, until a three or four-mile canter can be taken without distress; after which care must be exercised that he be made perfectly dry, which can be best done by using first what is termed a scraper: the legs are then to be well washed, rubbed dry, and immediately bandaged with flannel, which should remain on until he has been well groomed: the bandages must then be taken off and replaced by clean dry ones, which should continue on for some time.

Should the horse have been living on dry food, and in the bay of a barn, &c., during the summer, of course, it will not be necessary to exercise so much caution as regards change of diet, temperature of stable, &c., as in the former case; and you may, even

in the course of a day or two, perhaps, advantageously administer a dose of cathartic medicine; then at once proceed to your more active treatment, which should be the same as beforementioned, and it may be summed up in a few words,—good diet regularly given—proper exercise—stable or box well ventilated—not too much clothing—good grooming—and attention to the state of the bowels.

We now come to a consideration of the second division of our subject; which is, the treatment during the season. Upon this but little will be said, as it does not much concern the veterinary surgeon, the horse generally remaining in the owner's hands during this time. He is now liable to many accidents, such as sprains—throwing out of curbs—spavins—splents—being staked, &c., over which, with a variety of such like maladies, neither the owner nor the veterinary surgeon can have any control; but, when they do occur, the animal must be treated accordingly. But, during this time he will require occasional nursing, more particularly after a hard day's work, and I would recommend, when brought in, that about two or three quarts of tepid gruel be given instead of water, and a small quantity of hay whilst he is being groomed—which latter should not be too long about; and his legs being bandaged as before advised, and the dirt rubbed off him, by the side of his corn a warm bran mash should be placed. Neither should I object to a tonic ball being given, containing pulv. gentian et zingib. āā ʒij, and most decidedly I should allow one or two hours walking exercise the next morning. Occasional doses of cathartic medicine during the season will, I have no doubt, be likewise found of service.

We now pass on to a consideration of the third and last portion of our subject; and though the *last*, it is not in my opinion the *least* in importance. It is, I have said, this division which, perhaps, most especially affects the country veterinary surgeon; and this, because it is seldom that the town practitioner has the conveniences necessary for what is termed the summering of hunters. A great change is now to be brought about; and in throwing a horse out of condition as much, nay more, skill and caution are called for than in preparing him for that which he is now about to lose. The system has been brought into a highly excitable state, not only by the best of provender, &c., but also by the sports of the field, in which the animal has daily joined, and he is now to be withdrawn

from these stimuli. Having deprived him gradually of his clothing, warm abode, and grooming, he should be put either into a loose box, the bay of a barn, or a shed, having a yard about twelve feet square attached to it, a portion of the bottom of which should be covered with clay and tan, and constantly kept moist by means of cold water. Upon this part, more particularly, should he be fed, his diet consisting of hay six or eight pounds, or, if convenient, grass, green clover, &c., with about eight pounds of old oats and ten pounds of bran and chaff per diem: no grooming should be allowed.

I consider this mode of summering far preferable to turning horses out in a large grass field, where their feet are injured by the hardness and heat of the soil, the flies are continually teazing them, their legs are battered and bruised by galloping about, and they are liable, from being with others, to accidents of various kinds. Besides which, from the low state of condition they are allowed there to fall into, their constitutions are ruined by the sudden change they have to undergo in the preparation for the coming season; and this, I have no doubt, is the reason why so many hunters are worn out after only a few seasons' work; whereas, had they been kept on dry food and in doors, they would have been enabled to undergo, without any constitutional derangement, any change that might have been required.

The veterinary surgeon will, during this time, be expected to attend to the general state of the health of the animal, and also the treatment of any injury that may have been inflicted during the season, which is often the principal reason the animal is placed under his care; such, for instance, as what is called getting the legs fine, either by continual cold water bandages, the use of lotions, blisters, or the actual cautery.

It will, perhaps, be said, that I have omitted a most important branch of this subject, viz. that of shoeing. Had I entered upon it, I must also have considered the treatment of many diseases connected therewith; and feeling assured that there are many among you better able than myself to undertake that part of veterinary science, and, moreover, that it would be an excellent subject for a future Essay, which would be gladly received by the Association, I leave it, and remain

Your's respectfully.

MARCH 6, 1845.

Mr. W. R. SHIRLEY, V.P., in the Chair.

Mr. Harman, student, was elected a Member.

Certificates of Membership were awarded to Messrs. R. H. Dyer, Edwin Taylor, and Edward Mayhew, on obtaining their diplomas from the Royal College of Veterinary Surgeons.

ON DIARRHŒA IN CATTLE, WITH ITS MODIFICATIONS.

By Mr. W. Cox.

THE following Essay embraces three very important diseases to which cattle are liable, namely, Acute Diarrhœa, Acute and Sub-acute Dysentery, and Constitutional Dysentery.

ACUTE DIARRHŒA

Is the result of a functional derangement of some part of the digestive apparatus, but generally of the abomasum and the intestines, although sometimes of the latter alone; and which may be brought on by a variety of causes, such as too freely eating of succulent grass and clover, but more especially when these are bedewed with moisture; running about in a state of excitement in the summer season to avoid the attack of the gad-fly; or, when in a state of perspiration, taking their fill of cold water, and afterwards standing in a pool or river perhaps for hours together.

Drinking of stagnant pit-water has been likewise said to produce it; and some persons have asserted that the animalculæ met with in those places are the cause of this disease, which has led to the cleaning out of these pits and throwing in a quantity of quick-lime, after which, it has been stated that the disease has ceased. A sudden change of weather from dry to wet, no doubt, will also often become a cause.

Symptoms.—If a milch cow be attacked, she may appear in her usual health either in the morning or at night, but chiefly at the latter period, while she will yield her regular quantity of milk. But

so rapid is the progress of the disease, that at the next milking she will not give as many pints of milk as she did gallons before.

The coat will be observed to stare, the animal to stand with its back bowed, and all four legs placed nearly together, shivering as if from cold, scarcely a muscle or a limb being still; the extremities, nose, ears, horns, &c. are chilly; but the state of the fæces is the surest guide to a correct diagnosis. The alvine dejections are very watery, and mingled with them are portions of undigested food: they are also generally fœtid, but not invariably so. The animal has always a thin and tucked-up appearance, and the pulse is sometimes slower and weaker, though in the majority of cases it is but little altered.

Treatment.—Friction to the skin, a comfortable cow-house and being well clothed, with a mild stimulant administered, will sometimes bring about convalescence so rapidly, that the animal will appear in less than twelve hours as if nothing at all had been the matter with her. The only traces of the disease left are a loss of milk, and weakness for a few days. But if this disease continues, an aperient, consisting of castor oil, should be given, to which a small quantity of tincture of opium may be added. After the operation of this, a mixture of tincture of opium and tincture of rhubarb may be given with advantage. Starch or flour gruel should also be freely allowed.

Acute Dysentery.

This is sometimes the sequela of acute diarrhœa, the disease just described; and the same causes that are in operation to produce it will give rise to the malady now under consideration: I may further add, that cattle which are turned out to grass early in the spring are most frequently the subjects of it. Animals that have recently calved, and have but very little flesh on their bones or hair on their skins to keep them warm, and are exposed to the inclemency of the weather, are also very liable to its attack. The affection consists in an inflammation of the mucous membrane of the small and large intestines.

Symptoms.—The appetite and rumination are suspended, the ears, horns, extremities, and surface of the body are chilly, and a peculiar coldness of the mouth is present, with continual rigors and grinding of the teeth. The pulse is quick and feeble, but the

respiration is seldom much accelerated, and I have never observed any striking at the belly with the hind feet, or knocking the head against the side; but when in a recumbent position, the animal will lie groaning, or rather moaning, with its head turned towards the abdomen, which is a sure sign of pain in these animals. Tenesmus is present, the fæcal matter being very thin, and flakes of mucus mingled with it; hence the name of Dysentery. Coagulated blood will also often be voided, and that sometimes in very large quantities: it then constitutes what the cowleech calls "bloody flux," —a disease of frequent occurrence.

Treatment.—I never find any tolerance of blood-letting in this disease. The comfort of the animal should first be attended to, by placing it in a warm cow-house and well clothing it. A dose of castor-oil, with tincture of opium, should then be administered. If relief be not obtained, the exhibition of prepared chalk with opium must be resorted to, and the animal well supplied with sago gruel. If much blood is voided, and the mucous membranes are becoming pale, astringents combined with stimulants should be given without delay. I have found the diluted sulphuric acid and brandy very efficacious.

Restoration to health will often take place if proper curative means be early adopted; but if, on the other hand, the case is neglected, or improperly treated at the first, speedy death is commonly the consequence: if otherwise, it takes on the sub-acute form.

Sub-acute Dysentery.

In this form of the disease there is seldom much either to cheer the hopes of the owner or the practitioner, except that the poor beast will now and then take a mouthful of hay, or he will sip a little gruel; which, after all, proves delusive.

Symptoms.—The animal loses condition and becomes hide-bound—the teeth are loose—the breath fetid—vermin very soon cover the body—and, instead of mucus being voided with the fæces, we have now purulent matter; and if much gruel is given, it will pass through the alimentary canal very little changed—the eyes are sunk in their orbits—and the animal dies in a state of marasmus, the time varying, according to the intensity of the attack, from one week to three months.

The post-mortem appearances, in the acute stage, are inflammation

of the mucous coat of the intestines, with loss of substance resembling erosion. In the sub-acute or chronic form, we have ulceration of the mucous coat, involving very often the muscular; and, indeed, I have seen all the coats of the intestines in a highly diseased state, as well as all the compartments of the stomach.

I am now brought to the third and most important division of my subject, namely,

Constitutional Dysentery.

This disease has hitherto been confounded with the one last described; but in my opinion it is altogether a different affection. It has been called by writers chronic diarrhœa, chronic dysentery, rottenness, scouring rot, scantering, shooters, &c. This malady is of frequent occurrence, and also incurable when confirmed. But what makes it of great importance to the veterinary surgeon is, the fact that he will be more frequently called into courts of law to give evidence as to the soundness or unsoundness of animals labouring under this disease than all the other maladies to which cattle are liable. The primary symptoms are, an unhealthy appearance of the coat, it gradually becoming of a lighter colour; a cough will also be present, but not invariably; there will be a perceptible although slow wasting away of the animal, and, if a milch cow, a diminution of the lacteal secretion. Although rumination will be regularly performed, and the appetite apparently not in the least impaired, the above symptoms will continue without any purging being present for a period varying from one to twelve months; when on turning the animal out to grass, or parturition taking place, or exposure on a cold wet night in autumn, or some other exciting cause being applied, diarrhœa will commence, and which will generally continue, despite all the remedial means we may have recourse to. What had before puzzled the practitioner he now understands perfectly well: to use the language of the cow-doctor, the beast is rotten. The symptoms which now supervene are violent purging, the fæces being light coloured, fetid, and mixed with mucus, or something analogous to it; this being not in flakes, as in acute dysentery, but intimately mingled with the dung, giving to it an oily appearance, and causing it to have a bubbled surface after it has fallen to the ground. There is generally excessive thirst present, and frequent eructa-

tions of gas from the stomach, but no hoove. Although the animal will waste away, so as to appear little more than skin and bone, the appetite will continue unimpaired, and rumination be performed as in health.

The distinguishing characteristics between this disease and sub-acute or chronic dysentery, should the practitioner not know any thing of the previous history of the case, are, the peculiar state of the fæces (which I have described), and the absence of hide-bound. Another peculiarity is the appearance of the eye, which will be bold even to the last.

It is uncertain how long animals will live affected with this disease, as they are commonly slaughtered; but I have known them exist for two years. If they are attacked in the spring, they may now and then be patched up until the autumn; and if in the autumn, until the following spring: but the disease is sure to return, and will run its course.

Treatment.—It is my opinion that we should be more successful in our treatment of this disease, did our employers consider their own interest and consult us in the early stages of it, abiding by our decision, and not running to the quack or to the druggist for a cordial drink, as it is called, or some other nostrum. I have frequently succeeded—at least I have thought so—in arresting the progress of this disease, when taken in the early stage, by placing the animal under a course of tonic medicines, consisting of the sulphate of iron in combination with caraway-seeds, or some other carminative.

In the latter stages, or rather when the purging has commenced, I have checked it by the administration of astringents, combined with the vegetable tonics. For this purpose I have given the gall-nut with opium and prepared chalk. I am indebted to Mr. Morton for a knowledge of the value of the gall-nut as a therapeutic agent: it is one of the best astringents that can be given to cattle.

The only morbid lesions observable after death are, a slight thickening of the mucous coat of the intestines, most apparent in the small ones, with discolouration, if the diarrhœa has been long continued, but no ulceration; also, atrophy and dryness of the manyplus. The liver and all the other viscera are generally healthy, and it is astonishing what a large quantity of fat will be found within the animal. It is my opinion that the primary cause of

this affection is long-continued indigestion, brought on by bad forage, such as flooded or withered hay or grass, or the animal not being allowed a sufficient quantity of food or water. The process of chylification being thus rendered imperfect, the ingesta acts as an irritant to the lining membrane of the alimentary canal, and produces purging. The emaciation may be accounted for by the lacteals not being able to absorb the chyle. Excessive milking will also lay the foundation of this complaint.

I remember the progeny of a certain bull, nearly all of which became affected with this disease; from which I infer that it is sometimes hereditary.

Mr. Cox, in reply to several questions, stated that he had observed in many cases of acute diarrhœa the milk to diminish previous to the commencement of purgation, although that secretion was always subsequently lessened in a more marked degree; and he considered milch cows most liable to be attacked. This was to be accounted for by the sudden changes of food to which such animals are subjected. The farmer too often restricted the quantity of the food of the cow while in calf, saving the produce of his fields till the "season of profit" arrived, when the half-starved beast was turned into luxuriant pasturage, frequently to become diseased.

Mr. Cartwright said he approved of Mr. Cox's division, and agreed with him in regarding constitutional dysentery and diarrhœa as distinct diseases. In dysentery there existed ulceration of the intestines, and the fæces were often mingled with blood and pus. Acute diarrhœa had been successfully treated by him by first administering a purgative, and subsequently exhibiting astringents. He had known calomel to be employed with the best results. Constitutional dysentery was a far more obstinate disorder, and few beasts, when once affected with it, were saved. In cases of this kind ulceration of the intestines was not observable; but the omasum would be found inflamed, and impacted with dry and hard ingesta.

Mr. Robb remarked, that ulceration was not constantly present even when acute diarrhœa had existed for some time; and with this

Mr. Cox agreed, saying he had known violent purgation to be present for months without the lining membrane of the intestines

shewing any marked indication of disease, though generally some degree of inflammation was detected.

Mr. Fowler disapproved of the custom, common with many practitioners, of blending opiates and astringents with purgatives, in the treatment of these diseases: he preferred the practice of first seeking to remove any foreign agent from the alimentary canal by means of a laxative, and afterwards employing medicines of a corrective nature. The chloride of mercury he had witnessed the happiest effects from. Had the condition of the gall-bladder been noticed after fatal cases of dysentery? He remembered in one instance to have found the gall-bladder ruptured, and the ductus communis so constringed as not to admit of the passage of a fine probe.

Mr. Jekyl related a case in which the liver of a cow that had died from dysentery was found enlarged and softened, and the gall-bladder so distended as to be at least five times its natural size.

Mr. Bass confirmed the disposition of the liver to become affected in cases of dysentery. He had found abscesses, with inflammation of that gland, after death from diarrhœa, while the intestines were free from any marked symptom of disease.

Mr. Cox stated, that the result of his experience had not rendered him favourable to the use of mercury in any of its forms when diarrhœa exists. Its use seemed to him often injurious, and at best of no benefit. The liver in some cases would be diseased; so also would the lungs, although he never remembered seeing tubercles present in the one, or flukes in the other. Affections of this nature would, however, assume various types; and the keep and situation would so modify the symptoms, that his observations must be regarded as simply stating the result of his own experience; and the treatment he advocated received only as a result at which he had arrived when practising in a particular locality, and which he had found so beneficial as to enable him confidently to recommend it.

MARCH 11, 1845.

The PRESIDENT in the Chair.

Certificates of Membership were awarded to Messrs. E. Hutchinson, Josiah Hutton, Henry Evans, and J. T. Lee, on obtaining their diplomas.

CASE OF PERICARDITIS IN A BULLOCK FROM A PUNCTURE.

By Mr. W. LITT, *M.R.C.V.S.*

To the Secretary of the Veterinary Medical Association.

Dear Sir,—BEFORE this reaches you, you will, in all probability, have received the portion of diseased heart which you requested me to forward for the inspection of the members of the Association. The following is an account of the case.

On the 21st ult. I was called upon to visit a yearling bullock that had on the previous day evinced, for the first time, symptoms of illness. The animal, which was in good condition, obstinately refused his food, and looked slightly dejected; but, beyond this, and a slight degree of constipation of the bowels, there was nothing to distinguish his case from one of ordinary fever, *with the exception of the peculiar state of his pulse*, which was exceedingly full and rapid, something like 140 per minute; indeed, the pulsations were so quick, that, notwithstanding their full and distinct character, I had much difficulty in counting them. This circumstance, and the peculiar sound perceptible on auscultation at the sides, led me to the supposition of extensive disease of the heart, but of what particular character I was at a loss to determine. Having stated thus much to my employer, and further given an unfavourable prognosis, I set about the treatment as follows:—I commenced by the abstraction of blood to the amount of about eight pounds, and administered a strong purgative drench, which, having operated freely in the course of the night, seemed to afford considerable relief; for on the 22d he was decidedly better, and ate tolerably well, although there was but little alteration in the

state of his pulse. I ordered him to have the following drench night and morning :—

℞ Ext. bellad.
Ant. pot. tart. āā ʒj
Potass. nitrat. ʒvj
Magnes. sulph. ʒiv.—M.

On the 23d he was very much worse, and seemed to be in some pain, which, however, subsided on a second bleeding, though his appetite never returned. The medicine was persevered in, without the slightest beneficial effect, until the evening of the 26th, when death put an end to his sufferings.

Feeling some degree of interest in the case, I rode over on the following day, and made a post-mortem examination. The abdominal viscera were perfectly healthy, but, on laying open his chest, an immense mass of disease presented itself. The lungs were inflamed in places, not, however, to any extent; but the pericardium was extraordinarily diseased. It was not only much thickened and inflamed, as you will perceive by the specimen sent you, but was also completely enveloped in a thick coat of coagulated lymph-like substance, from which large flakes of the same material were floating loosely in the chest. Having removed the pericardium and its contents apart from the chest, a more minute examination detected a slight opening through the sac, and a corresponding one in the substance of the heart itself, extending about half way through the wall of the left ventricle, as will be perceptible should the specimen be still sufficiently perfect. The membrane of the heart itself was much diseased over its entire surface, and there was also an inordinate quantity of the *liquor pericardii*. Thinking the case curious, I brought away that portion of heart and sac containing the punctures, and which I trust is now in your possession: had I then thought of sending it to the Association, I should have taken the whole organ. As the animal's skin had been removed before my arrival, I had no opportunity of examining it; but I found a distinct mark, in fact a long-healed cicatrice, on the anterior portion of the left *pleura costalis*.

The conclusion at which I arrived respecting the case was, that some time, probably months ago, the side had been punctured by

some sharp instrument, and the heart wounded to the extent shewn, and that the efforts of nature had never been sufficient to close and heal up the injury: unhealthy inflammation was the consequence, and the result of all, the mass of disease I have attempted to describe. The case is also interesting, as being another proof how long the most serious disease of a most important organ may be going on without in any way interfering with an animal's apparent well-doing—a circumstance of great importance to the veterinary surgeon.

I had resolved to make some further remarks, but the well-known ability of your President will, I hope, supply the omission.

Mr. Spooner.—The observations made by the gentleman who has favoured us with the specimen that now lies upon the table are so clear and conclusive, that little room is left for a comment on the case. It is one of chronic pericarditis. The wall of the left ventricle is pallid and slightly atrophied, while that of the right retains its healthy aspect. Inflammation appears to have been confined to the pericardium, on which may be traced the appearance of a cicatrix, proving that an injury had at some antecedent period been inflicted. The case is certainly one that merits our especial attention, since it illustrates the fact that an organ of the highest importance to life can for a time, at least, endure and resist an injury, which, without the proof before us, we must conclude would have been immediately fatal. It is only for a short period, however, that Nature bears up against the mischief, since I have never known a case of this kind which she was enabled entirely to surmount. The progress of after-disease may be slow, but the result is always certain.

Case of Ossification of the Right Auricle of the Heart of a Horse.

By Mr. W. Thacker, *M.R.C.V.S., Twickenham.*

Dear Sir, *March 10th*, 1845.

I have forwarded to you a morbid specimen of somewhat a rare kind, I believe. I should imagine it to be deserving the name of ossification, although probably the parts involved have not yet become perfect bone. I have sent it exactly as it was removed from the animal, so that you may make a correct examination of it.

The subject whence it was taken was a dray horse, the property of the Messrs. Farnells, of Isleworth, and had been in their possession nine years, having been purchased when three years old. He was of rather a nervous temperament, but in other respects nothing was observed to be amiss with him until within the last few months, when he evinced fatigue after a long journey, which he had never done previously. About a month ago, however, his appetite became entirely suspended, and he appeared very languid. My attention being now directed to him, I found his pulse ranging between 40 and 45, slightly intermittent, and small both in the arteries and at the heart; diminished circulation in the skin and extremities; regurgitation in the jugulars; visible mucous membranes of a healthy colour; slight and occasional cough; excretions natural, and breathing tranquil. From these symptoms, I pronounced him suffering from diseased heart, and that probably of an organic nature; but at the time anticipating an attack of influenza, which was then very prevalent in the neighbourhood, I administered to him a mild aperient, put him in a quiet place, and clothed him warm. On the following day, no other symptom having shewn itself, nor any abatement in those previously existing, I felt convinced that the heart was the sole cause of ailment, but I was still at a loss as to the particular nature of the disease. I administered diffusible stimulants, with, occasionally, an alterative dose of aloes; which treatment was continued for nearly a fortnight, during which time the appetite gradually returned, but the pulse remained the same, both in character and frequency. The breathing, previously tranquil, now became some-

what quickened, but still it was not hurried; soreness was expressed when turned round in his stall, which daily increased, and he throughout retained the standing position. A narcotic agent was now administered, combined with the diffusible stimulant (viz., extractum belladonnæ cum liq. ammoniæ acet.), and blisters were applied to his sides. This treatment was persisted in for a week, but without the least amendment. He gradually lost flesh, and, as all hope of permanent recovery was abandoned, he was destroyed. For the week before his death, it appeared as if the pleuræ were becoming involved. The autopsy, however, brought to view a healthy state of that membrane, as also the lungs, with the exception of these last being increased in bulk. The heart, however, as you will observe, sufficiently accounted for his illness, though perhaps not so clearly for some of the symptoms evinced. It weighs fifteen pounds, and the right auricle is the part more especially affected. The pericardium, and the liquor pericardii, were in a normal state, as were also all the other viscera. Should the specimen and this imperfect description be deserving the attention of the members of the Association, I hope it will prove the means of eliciting more correct information on this but little understood, though highly interesting and important, subject.

I am, dear Sir, your's, &c.

Mr. Spooner.—The state of chronic disease which the right auricle of this heart presents merits our attention. If the abnormal deposit yet wants the perfect character of bone, the ossific process has nevertheless decidedly commenced. This form of disease of the heart is rare, yet I have seen the change of structure of the organ much more complete, and the ossific deposit of far greater amount than is here shewn. This is a specimen taken from out the museum of the College, in which the alteration of structure has been so far perfected, that almost the whole of the right auricle has been converted into bone; and I remember the case of a cab-horse, in London, which was regularly worked up to a few days prior to its death, in whom the whole of the right auricle was found to be completely ossified. In such a case, it is obvious that the contractility of the cavity must be lost, and yet this animal, subjected as

he was to the will of its owner, and liable to have its circulation frequently accelerated, was enabled not only to exist, but to perform exertion with apparent ease. I was informed that during life one of the most marked symptoms was a throbbing of the veins, very perceptible in the jugular vein, synchronous with the pulse, and referrible to the regurgitation of the blood. This regurgitation is to be very plainly observed in many debilitated animals, and I have, with others, been accustomed to attribute it to a revulsion of the current produced by the contraction of the superior cavity of the heart; but when the right auricle has suffered such a change of structure as must destroy its contractility, we at once perceive that such a cause could no longer exist, and therefore the impulse communicated to the veins must be referred to the force imparted to the current by the contraction of the ventricle.

On cutting into this morbid specimen, I perceive the serous membrane of the left ventricle is acutely inflamed: to this circumstance, rather than to the chronic condition of the right auricle, I attribute the symptoms which were present prior to the death of the animal. Under a similar state of disease a man would have probably continued to live; but the horse is not able to accommodate himself to circumstances, being kept alive only for his uses, and his life is worthless as soon as his capability of exertion is lost. The care and caution the human practitioner employs in the treatment of diseases of the heart, the veterinary surgeon cannot exercise towards his patients, and hence, perhaps, instances of chronic carditis are less frequent in the horse than in man. As I perceive we are to-night favoured by the presence of Mr. Erasmus Wilson, I hope he will pardon me when I inquire, has he ever met with a similar case in the human subject?

Mr. Erasmus Wilson.—I cannot say that any similar state of disease connected with the human body ever fell under my notice. In man, disease of the right side of the heart is a rare occurrence. Hypertrophy of the left ventricle is by no means unusual; but the auricle is seldom involved unless the lungs are affected.

I perceive that the regurgitation of the blood into the veins is a symptom for which you have not a name. We denominate it the "venous pulse," which in the instance before us may perhaps be thus explained. There exists in the veins a considerable *vis-à-tergo*, a force directed towards the heart, and in this state of the

heart the blood would flow freely into the right auricle. Having entered the auricle, no contraction of the cavity could succeed; the impulse of the ventricle would be communicated to the blood contained in the auricle, and thence directly to that of the veins, which might be the more marked because of the normal portion of the organ being called upon to make greater exertion for the support of the circulation.

Case of Amputation of the Penis.

By Mr. G. Hill, *M.R.C.V.S.*

Islington, March 11th, 1845.

My dear Sir,—You will remember, that about a month since I asked your advice relative to a black stallion that had an engorgement of a portion of his penis. The horse had the epizootic prevalent at the time (now three months since), when the penis became drawn by the excitement which a mare occasioned, and he was unable to retract it. In consequence of its pendulous position, a deposition of lymph into its cellular tissue took place, and it resisted all means employed to reduce it. About twelve days since I applied a silver ligature around the end of the penis, which I removed this morning, without any hemorrhage taking place. I have thought you would like to shew it this evening to the members of the Association, and therefore forward it.

Your's very truly.

Mr. Spooner.—This case is not without some degree of interest, though it is by no means an unusual one. The horse appears to have been a debilitated animal, for the two muscles running from the floor of the sacrum along the inferior portion of the urethra, provided by nature to retract the penis, are very pale and much wasted, having lost their function. Such a state of parts, however, did not prevent the organ becoming erect from excitement. If the penis be not retracted, mere gravitation of the blood will occasion distention of its vessels. I have known it to take place after castration has been performed, and the parts remain ex-

posed and pendulous. Serous infiltration first presents itself—then lymph is thrown out—a general thickening ensues—and all hope of the organ ever being again withdrawn is dissipated. The importance of early and decisive measures, such as first making free scarifications, and then supporting the body of the organ with a bandage, cannot in these cases be over-estimated. On this particular case my opinion was requested a month ago; and I then advised scarifications to be made, though, from the length of time during which the parts had been affected, I said there were but slight hopes of any measure short of amputation being of benefit. I have repeatedly amputated the penis of the horse, and always with success. Mr. Hill employed a ligature of silver wire to effect his object; but my plan is, first, securely to fix a tape around the organ above the place where I intend to make my incision, and then at once to remove the diseased part. This being accomplished, I employ the actual cautery to stay the hemorrhage, especially from the spongy structure, taking care, by slitting up the urethra for a short distance, to keep that canal pervious. Animals thus treated have been known to do well for years after the operation. In the part before us, the external opening of the urethra is almost obliterated, and the integumental covering exhibits a tendency to ulcerate. It may be regarded as a case analogous to paraphimosis in man.

Fatty Tumours taken from the lumbar Region of a Horse.

By Mr. N. Fowler.

Ware, March 5th, 1845.

Sir,—I have forwarded by this morning's train a mass of tumours, which I hope will be of sufficient interest to place before the members of the Association. I was first called in to see the horse on the 15th of September, 1844. It then appeared to be suffering from what I imagined to be inflammation of the liver. From the treatment I adopted, the animal slowly recovered, so as to be able to perform light work until recently, when it rapidly got worse; the hair of the mane fell off, and there was much constitutional disturbance present. Seeing no prospect of a perfect cure,

I thought it best to advise the owner to have him destroyed, which was done the 1st of this month. On dissection, the tumours sent were found immediately over the kidneys, and attached to the liver. The horse was fifteen years old, and used to do very hard work. He first appeared to fail about a year and a half back, without any apparent cause.

Believe me, Sir, your's very respectfully.

Mr. Spooner.—These tumours, the weight of which is sixty pounds, are of a fatty nature, though partially fibrous in their structure. The probability is that they originated from inflamed mesenteric glands. Such changes, consequent upon diseased action, are by no means unfrequent, especially after cases of suppressed strangles. From the lowness of the organization in this instance, diseased action must have been going on for a considerable time, and it is not unusual to discover in our post-mortem examinations the existence of accumulations of this nature, which, during life, were never suspected to be present. I remember, some years ago, a horse which had fractured his radius, and in consequence of the accident the animal was destroyed; when there was found within the thorax a tumour weighing no less than fifty-four pounds. From its size, as you may suppose, it compressed the lungs, and occasioned a considerable diminution in their bulk; but it was unattended with any marked symptoms during life, and from its position there were no means of detecting its existence; but in this case an examination per rectum would probably have made the practitioner aware of the presence of the tumour, which appears to have surrounded and compressed the vena cava. The value of this mode of exploration cannot be too much impressed upon the mind. It has aided me in many an obscure case. In one instance, where a horse had been subjected to treatment by several practitioners, and concerning the cause of disease there had been delivered many contradictory opinions, I, by passing my arm up the rectum, was enabled to solve the mystery, by detecting the spleen to be considerably enlarged.

Experiments illustrative of the Effects produced by obliterating the Fallopian Tubes.

By the President.

I wish to direct the attention of the members to the organs of generation taken from two female pigs that have been subjected to experiment in the College. In both, the abdomen was opened as in the common operation of spaying, and the horns of the uterus, together with the ovaria and Fallopian tubes, were freely exposed. In one case, a ligature was placed around the Fallopian tubes, close to the horns of the uterus; and in the other, a portion of each tube was removed. The operation was similar in effect in both, namely, disconnecting the uterus from the ovaria, the object in view being to ascertain the result upon the desire for sexual intercourse, and the ability of the animal to propagate its species. The pigs were small when operated upon, and both did well and grew to maturity without exhibiting any symptoms of disease. They were destroyed the day before yesterday, and we find in both instances the Fallopian tubes to be impervious. This state of parts seems not in the least degree to have lessened the desire for copulation, since when the animals arrived at puberty the labia pudendi became inflamed, with other symptoms denoting œstrum, and the male was taken by both of them. A few weeks after he was admitted a second time, and, on the animals evincing a desire for the male a third time, they were then slaughtered. In the ovaria in each we perceive the corpora lutea are distinct, being seemingly about to burst. In one, numerous hydatids are attached to the uterus, while in the other large sacs, containing a dark matter resembling coffee-grounds, are adherent to the ovaria. The parts also, on cutting into them, appear unusually vascular, but we must remember the animals were destroyed during the existence of sexual excitement.

The result of these experiments would seem favourable to the idea of the passage of the sperma up the Fallopian tubes in order to impregnate the vesicle of the ovarium; and, it certainly proves that the obliteration of the tubes does not prevent desire, although it renders propagation impossible.

Severe Case of Broken Knee and Open Joint.

By Mr. Erasmus Wilson.

Mr. Spooner.—The morbid parts before me possess an unusual degree of interest. They were taken from a horse the property of Mr. Erasmus Wilson, who, being present, I know will give the Association the history of the case. Three or four days since, I was requested by him to see the animal, which I found in a sad condition. The left knee had been broken, the joint opened, and the horse, which had been under treatment for some time, was in a state of great suffering. The pain rendered the animal unable to support his weight upon the injured limb, and the poor creature, when I saw him, actually grasped the manger with his teeth, endeavouring by this means to remove some portion of the weight from the fore extremities. On examination, I discovered that there was extensive bony deposit thrown out around the injured knee. Partial anchylosis had taken place, and crepitation was distinctly to be felt, which I now perceive arose from a portion of the bony deposit that had been broken off by the falling of the animal in the stable when under treatment. Had I seen the horse when the accident occurred, it is probable I should have immediately advised its being destroyed; and when I did see him, there was no other course to be recommended, as no treatment could hold out any prospect of a cure. The evil consequences of one limb being, as it were, suddenly called upon to perform the offices of two, is in this case well marked, and merits especial notice. When the joint was opened, the horse could no longer support any portion of his weight upon the injured extremity; the whole burden, therefore, of the front of the body had to be upheld by the healthy limb. The result of this continued and undue pressure upon the foot was, in the first instance, an impediment to the free circulation of the blood. The veins of the horse's foot having no valves, the return of the blood is effected chiefly by a pumping action induced by intermittent pressure given to the part whenever the animal progresses, or, if in the stable, shifts its position; and no greater injury can be inflicted on this organ than forcing the horse to stand continuously, which, by impeding the circulation, must eventually induce disease. Here one fore foot had to sustain the whole weight, and, as a consequence, inflammation

and congestion of the laminæ ensued, and the pedal bone, as you perceive, has descended, and is actually protruding through the sole. The point of the os pedis had thus to endure all the weight, which, in a state of health, is sustained by the fore extremities. This will explain the cause which compelled the poor animal to seize the manger with his teeth, and, by firmly grasping that, seek to remove some portion of the weight from the fore limbs, both of which having now become so inadequate to the task. This serves to impress upon us the importance of giving artificial support in cases of a similar nature. In all severe cases, slings should be employed; and were some support afforded, even in cases of lameness resulting from less formidable causes, contraction of the foot, as the result of disease, would, I think, be far less common than it is at present.

Mr. Erasmus Wilson.—The history I have to relate is brief. This was my first attempt in the practice of veterinary surgery, and you will no doubt say it does me little credit. My poor horse was a heavy animal, and not at all fitted for the saddle. I was riding him during the first week in January last, when the accident occurred. You will, perhaps, tell me I ought not to have ridden him. My feelings towards a horse make me averse to the employment of the whip or spur, and this animal, being pretty much his own master, had contracted a clumsy method of going. He was trotting over some gravel recently laid upon the road, when he tripped and came down with a running fall, the principal shock of the fall being received by the left knee. I was in the act of proceeding, the horse having recovered himself, when it was remarked by a bystander that the knee was wounded. I then dismounted, and found the integument of the entire front of the knee removed, the bones exposed, and a thin membrane bulging, upon pressure, from between the bones. This latter I regarded as the synovial membrane. I took the horse home, and had all the particles of gravel washed away, and applied a poultice over the wound; but I soon found that your patients are not so manageable as ours, for he tore off the bandages with his teeth, and rubbed his knee against the manger, so that in the morning there was considerable swelling and inflammation. There was also some oozing of a transparent fluid from the synovial cavity, and the quantity poured out soon became much increased. I observed that this

fluid was spontaneously coagulable, and inferred, therefore, that it contained fibrine. The process of granulation was very slow, and when it had commenced the granulations were large and flabby. I now wanted to close the opening, and, having consulted veterinary authorities, contemplated the use of the actual cautery; but it seemed to me that so severe a remedy must either produce sloughing of the newly formed textures, or increase the inflammation. I then hit on the following expedient, which at the time I esteemed a brilliant discovery, and one which would enable me to appear before you in triumph. I intended to have come here, not, as now, to confess my errors in the face of my work, but to have asserted my claim to your consideration as a worthy member of your Society. My plan was this:—Finding the granulations large and passive, I punctured them, and thus relieved their congestion, and excited them to throw out smaller and more active granulations. In this way I nearly effected the closure of the wound, and should have succeeded entirely, but for the copious fibrinous secretion poured out through the contracted aperture. At last, however, I did accomplish my object—but, alas! it was only drawing a veil before the mischief which was progressing internally. The secreted fluids, no longer able to escape, formed a considerable tumour; there was great thickening all around the joint and the metacarpal bone, and œdema along the radius, and about the extremity of the humerus. Indeed, I began to perceive that a broken knee was a much more serious matter than I had anticipated; and I discovered, moreover, that an injury which may be treated with fair chance of success in a man, offers but a dreary prospect in a horse. With this feeling, and perceiving that there was more deep-seated mischief than I had anticipated, I appealed to the kind assistance of my friend, Mr. Spooner, who assured me that hope was past, and that no relief remained but death. I must remark, that, on the closure of the wound, I attempted to produce absorption of the thickening tissues by blisters, and by the administration of castor and linseed oil.

Mr. Spooner.—After the orifice is closed, we consider the application of a blister to be sound practice. The wonder is, that, under all the circumstances, you could get the wound to close at all.

Experimental Operation in a Case of Congenital Malformed Feet.

By the President.

Mr. Spooner.—The legs now lying on the table were taken from a foal sent to the College by Mr. Smith, V.S., of Epsom. It was obliged to be brought in a cart, in consequence of its labouring under a congenital deformity affecting the fore-limbs, the feet being drawn backwards and upwards, so that the weight of the body, in progression, was thrown upon the os coronæ. Examination shewed not only the derangement to which I have alluded, but likewise an excrescence on the lower part of the os coronæ of each foot, causing partial anchylosis. The case was quite different in its nature from those which are usually the result of contraction of the tendons, and from the first I entertained an unfavourable opinion as to the result of any treatment. Yet, as an operation held out the only chance of ever rendering the animal useful, I did not hesitate to try the experiment. On applying force to bring the foot as much as possible into the natural position, no tension was produced upon the tendons above the pastern, as is usually the case when their contraction causes the heel to be elevated. In such cases we divide the tendon above the pastern. During the present session this operation has been performed upon a mare with perfect success; but in the instance of the foal no force we could employ had any other effect than that of rendering tense the perforans below the pastern. It became evident, therefore, that good could alone result from the division of the tendon at that part where tension could be induced; yet, in order to effect this, it would be necessary to open the synovial sheath. I was, as you know, fearful of the consequence, but still I hoped to learn something from the attempt; and my hope was the greater, inasmuch as I was informed by Mr. Sewell that the French were, in ordinary cases, constantly in the habit of operating after this method. Accordingly the attempt was made; the synovial sheath was cut into; the perforans tendon was divided; the foot was brought partially to bear upon the ground; and at first the case appeared to be doing well: but inflammation soon set in, and, despite all

our efforts to check it, extended upwards, and produced an abscess which burst above the pastern joint. The case now became hopeless, and the animal was consequently destroyed: and, from the result of this operation, I conclude that the method adopted by the French, in ordinary cases of contracted tendons, is not to be preferred to that we are, in this country, accustomed to have recourse to.

TUESDAY, MARCH 18, 1845.

The TREASURER in the Chair.

THE evening was occupied by the consideration of an Essay on RED-WATER, read by Mr. T. D. Gregory.

Mr. Robb said that he differed only in one or two general opinions, which Mr. Gregory, in common with many other writers, had advanced. He, Mr. Robb, was inclined, from what he had seen and heard of the disease called red-water, to regard it as identical with jaundice, and to consider obstruction to the free passage of the bile as its principal cause. This view, he thought, would satisfactorily explain many of the symptoms; it being well known that extreme depression of the vital powers, and even death, might follow the sudden suppression of bile; while diarrhœa, and its attendant debility, would be the consequence of an obstruction to its flow into the intestines. He had himself no doubt of the identity of the two diseases; and if the causes which authors state will produce jaundice in man, and those which give rise to red-water in cattle, were compared, the similarity would be found so exact, as to preclude the idea of the two affections being distinct. The principles of the treatment in the two diseases likewise bore a strong resemblance to each other, while the pathology of each was alike in all the more essential particulars. Mr. Robb concluded by stating, that observation and reflection had induced him to think that red-water arose, not from the excess of bile, but from its secretion being suppressed; the elements not being removed from the blood in consequence either of functional disorder of the liver, or of some obstruction existing to the flow of the bile

through its ducts. The liver being thus unable to purify the blood, called upon the kidneys to perform that function, and bile was consequently excreted with the urine; although, when he asserted this, he did not mean that pure bile was to be discovered in that secretion, but rather that the elements of bile, which were foreign to healthy urine, were present in red-water.

Mr. Morton stated that he did not agree with the conclusions to which Mr. Robb had arrived. It was well known that he had chemically examined the urine of animals suffering under red-water, and he was not aware that the result of his examinations had been controverted. There was no great difficulty in detecting either blood or bile if present in urine; both were capable of demonstration: the tests were dissimilar, the proofs were unlike, and the possibility of mistaking the one for the other it was not very easy to conceive. He had again and again seen in the urine of red-water, not perhaps pure blood, but certainly impure or imperfectly formed blood; such a fluid as is then found to be circulating in the body. Bile, it is true, has often been detected in urine, but it has not as yet been demonstrated in that excretion during the existence of red-water. That the colouring principle of blood and bile were similar, he must be permitted to express a doubt; and even if they were, if iron be not the cause of colour in the blood, as stated by some, the presence of that metal or its oxide, which was no element either of bile or of urine, was so characteristic and conclusive, that, having ascertained its existence in the urine of animals labouring under red-water, he must believe that it and jaundice were distinct diseases, although, doubtlessly, both were intimately associated with the state of the digestive organs, and the reciprocating function of the liver and kidneys he was ready to allow.

Mr. Gregory said that "yellows," so called in cattle, answered to the disease termed jaundice in man; from which red-water was as distinct a disease as phrenitis.

Mr. Cox asserted that experience had led him to doubt the correctness of the opinion of those gentlemen who associated red-water with parturition. He was not unacquainted with either. He had seen much of both; but he had seen nothing to induce him to connect the one with the other. In his neighbourhood it was most prevalent during the winter season, which was not the period

of calving. It was, however, often produced by a particular species of pasture or by change of food. He was acquainted with a farm in Derbyshire where the cattle reared upon the land were not the subjects of red-water; but if any strange beast were pastured on these fields it was certain to be attacked by that disease. He would relate another instance of red-water being produced by the food, because it was one which is not generally noticed. A friend of his, the owner of much stock, for the first three years of their acquaintance never had a single case of red-water. The fourth summer, however, was exceedingly dry,—the pastures were burned up,—when suddenly the rain fell, and continued for some time, and the land, from being hard and bare, became all at once wet and luxuriant; and all the cattle on that farm, with a solitary exception, became affected with red-water.

With regard to treatment, Mr. Cox said he would honestly confess he had no experience as to the efficacy of bleeding, and the assertions of most practitioners had almost prejudiced his mind against it. He did, however, remember several cases where the owners, not recognising the disease, had, in the early stages of it, withdrawn blood, and the animals recovered. There was also a practitioner residing in his neighbourhood who, in cases of red-water, was accustomed to extract blood, and with by no means ill success.

Mr. Boddington observed, that he was fully convinced of the influence of pasturage on the production of this disease. He knew one farm in particular where certain fields, which consisted of wet, rushy, and undrained land, always produced red-water; and here, too, it was most prevalent during the winter season.

Mr. Crabb said he had never seen a case of red-water during the summer only after parturition, though in the autumnal months he had often known it to be connected with other causes.

Mr. White remarked, that although most pathologists appeared to agree in associating red-water with parturition, he, with many others who had spoken, and who were from Derbyshire, were but of one opinion; namely, that they had never seen it in that county follow immediately upon calving.

APRIL 1, 1845.

The TREASURER in the Chair.

A letter from M. Bouley, confirming the proposal of an exchange of journals with the "Recueil de Médecine Vétérinaire," and soliciting the same for the Veterinary Society of the Seine, was read.

CASE OF STRANGULATION OF A TESTICLE RETAINED WITHIN THE ABDOMEN.

By Mr. W. BAKER, *M.R.C.V.S.*

Dear Sir, *Sudbury, Feb.* 28, 1845.

THE case of strangulated testicle which was the subject of conversation between us, and which you wished me to give you an account of, occurred in November last, at Shimpling, nine miles from this place. I was requested to attend the horse, but when I arrived he had just died, and the owner, Mr. King, desired me to institute a post-mortem examination, in order to ascertain the cause of death; when, upon opening the abdomen, the same appearances were presented as in a former case recorded by me. The viscera generally were healthy, but a pendulous testicle was found in the iliac region, black and stinking from strangulation, the cord being tightly twisted. The peritoneum in contact with these parts was inflamed, but the cord, above the twisted portion, was in no way affected. I have since ascertained that the horse had evinced continuous pain for about five days prior to his death. When well he was anxious after mares, and had covered several, and was supposed to have got one foal. He was half-bred, and used alternately for the road, plough, &c. The other testicle was removed by the usual mode of castration when he was two years old. He was eight when he died.

A singular circumstance claimed my attention yesterday. A heifer calved a fine healthy calf at mid-day; and between two and three o'clock in the same afternoon, when I called at the farm, the

boy attending said the calf was "lousy," and, on looking at the back and shoulders, I found it had lice in great numbers. I naturally proceeded to examine the skin of the mother, which I found to be slightly affected with them, but not to one-twentieth part the extent the calf was. This quick generation of parasites, and in such extraordinary numbers, is somewhat surprising. I know not if the like has been observed by others.

I remain, dear Sir, your's, &c.

To Mr. C. Spooner.

Mr. Spooner.—The history accompanying this case is brief, but, from the circumstance to which it refers being very unusual, it becomes one of the highest interest. "Rigs," or horses that have been deprived of but one testicle by the castrator, are common enough, and such animals I have known to live and work well for years; but it has occurred to Mr. Baker, in two cases of "rig" horses, to find a testicle in the abdomen in a state of gangrene, consequent on the cord becoming twisted. The possibility of such a consequence teaches us that there is danger in the non-descent of the testicle into the scrotum, particularly if left as a pendulous viscus in the abdominal cavity; and should we, in practice, meet with the like cases, it would, I think, be our duty to advise our employers to part with such animals, for a circumstance which has happened twice may occur again. I, however, cannot recall to my memory any similar cases to the two recorded by Mr. Baker. Their history tells us but little of the symptoms, which doubtless resembled colic and peritonitis; although it is probable other indications were also present, which might be considered diagnostic in their nature. The position of the testicle should not be lost sight of, as in many horses termed rigs the remaining gland is to be found impacted within the inguinal canal, and considerably less than its normal size; and in such cases the same danger of the twisting of the cord is not to be apprehended. The loss of substance of the gland, when in this situation or within the abdomen, does not deprive it of function; and it is important to remember that a rig is fully capable of impregnating a mare. Instances of foals, the sires of which were rigs, are well authenticated, although Sir Astley Cooper was of opinion, that, unless the

testicle descended, its use in propagation was destroyed. The celebrated surgeon to whom I have referred, however, confined his remarks to the human subject; and our late patron, Professor Coleman, contended against the inference as being applicable to the horse, basing his deductions on facts.

Calculi in the Bladder and Urethra of Sheep.

By Mr. F. R. Silvester, *M.R.C.V.S.*

Dear Sir, *St. Albans, March* 21, 1845.

I have forwarded to you a bottle containing urine, with the bladders and kidneys, taken from some fat tegs which have been placed on a high situation and gravelly soil. They have been kept well on oil-cake, hay, and turnips; these latter having been greatly injured by the frost, many of them being rotten.

From what I can learn, the symptoms are:—loss of appetite—lying down almost constantly—and when they rise they strain violently to urinate, but ineffectually.

Twelve sheep have been affected, and in none of them has the disease been allowed to run its course, they having been slaughtered. You will observe the coats of the bladder are much inflamed. A quantity of apparently calcareous matter has existed in those I have examined; and the kidneys were of the same appearance as those sent: all the other viscera were in a normal state.

I am, Sir, faithfully your's.

To Mr. Morton.

Mr. Morton said that he had found the specific gravity of the urine to be 1·20; it possessed an alkaline reaction, and he had obtained traces of the presence of both albumen and bile in it. The calcareous deposits consisted of animal matter and carbonate of lime. Dried on bibulous paper they became amorphous, and resembled lime; in hydrochloric acid they dissolved with effervescence, and when treated with potassa they yielded no ammonia. Whether any of the phosphates entered into their composition he would not positively say, but he had not obtained any indications from the tests resorted to by him. The subject of the formation

of calculi was one of considerable importance, and the advances now being made in organic chemistry tend to withdraw the mysterious veil that has so long concealed the transmutations that are taking place in the animal economy. For the constituents of these concretions we have to refer to the food taken into the system; and we must bear in mind that there are certain organs which act as depurators to the blood, and among them none more so than the kidneys, which excrete all soluble saline substances in the form of urine.

We are told by Mr. Silvester, that these sheep had been fed on turnips, many of which were decomposed or rotten. This would induce derangement of the digestive apparatus doubtlessly, but it would not satisfactorily account for the production of carbonate of lime in the bladder, nor tell us why the kidneys, beyond all other organs in the body, should become affected. Perhaps the principles of chemistry may assist us.

Lime is a constituent of the turnip, and the same bulb contains large quantities of the salts of potash and soda. Here, then, we have a clue to the cause of the urinary organs being unduly acted upon: it is referrible to the presence of the last-named salts. Liebig places the relative proportions of lime and magnesia, and the salts of potash and soda, as 18·40 of the former to 81·60 of the latter in the 100.

In the urine a characteristic substance is met with, namely, urea. The changes which this organic principle undergoes, under certain conditional circumstances, are varied and often complex. Among the compounds formed by it with water is the carbonate of ammonia. It is true that this metamorphosis more commonly takes place after the urine has been excreted; but it will be borne in mind that we have to do with a somewhat vitiated secretion arising from the nature of the food, it being well known that decaying vegetable matters readily yield a large amount of the saline bodies they contain. The compounds that are formed, too, are prone to undergo change from the feebleness of the affinities that bind their elements together; so that when the urine is retained longer than is natural in the bladder, or is of an unhealthy character, from reasons already assigned, decomposition ensues, and new compounds are formed, favoured by the fact, that, in the normal condition of the urine, the saline constituents are but

small in quantity compared with what are now present in it. Now, as quantity sometimes determines decomposition, the carbonate of ammonia, generated as I have stated, may become converted into carbonate of lime, from the lime being in excess, which being a comparatively insoluble compound, would be deposited in a solid form, and then, becoming mixed with the mucus of the bladder, make up the concretions under notice. Or, if you will not accept this theoretical explanation, the production of carbonate of lime may be referred to the fact that organic salts having alkaline bases, become converted into carbonates in the organism, and the carbonate of lime is now thrown down by the urine undergoing a change, or not possessing those conditions which are requisite to retain certain compounds in a state of solution in it.

Mr. Simonds.—There can be no doubt of the advantages to be derived from an application of the principles of chemistry to pathology. It is only of late years that calcareous deposits in the bladders of sheep have been so frequently observed. Mr. Crabbe last session brought forward the first case of the kind on record, and in those cases the sheep had been fed on vegetables growing on land which had been recently limed; hence it was easy to account for the formation of these calculi. More lime has been used of late years than formerly, and the effect of this on the food of animals was in his opinion a subject worthy of investigation. In the specimens now before us, the deposit of carbonate of lime is to such an amount, that the entire mucous coat of the urethra is covered more or less with calcareous matter, and within the vermiform appendage the canal is blocked up; the bladder in consequence has become greatly distended. The kidneys are of a pale colour, but not otherwise structurally diseased. The sheep, then, died from long retention of urine, consequent upon calcareous deposition, and either such cases are new, or hitherto they have been too much neglected.

Mr. Cox related an instance of a large dairy of cows being fed on turnips that had been grown on land manured with guano, and all of them became affected with nephritis. The bulbs were given with the earth upon them: the disease disappeared when the food was changed, but again returned on the turnips being allowed.

Mr. Morton.—Such an effect from such a cause was highly probable, as guano contained several of the salts of ammonia, which, acting as diuretics, would be very likely to produce nephritis.

Case of Abscess in the Brain of a Sheep.

By Mr. J. B. Simonds.

The head of a sheep before me has been forwarded by Mr. Baker, of Sudbury, having been removed from an animal supposed to be affected with "gid" or "dunt," as the disease is termed in the county of Essex, the symptoms of which had been present about three weeks. On laying open the skull, the cerebrum on the right side was observed to be enlarged, the pia-mater being raised, and having on the centre a cream-like elevation, with red vessels radiating from it, increasing in size and number, and altogether unlike what appears when an hydatid exists. On cutting into the tumour, about half an ounce of thick pus escaped, which was white in colour and free from fœtor. The cavity in which it was contained is, as you see, situated in the substance of the cerebrum, and has no communication with the lateral sinus; it presenting the most perfect case of an abscess in the brain I have ever seen. Any attempt on my part to explain the true cause of this unusual disease would be imperfect, as we know so little of the history of the case; but I may observe that, in all probability, it resulted from an injury which might have been received in fighting or butting, a practice to which sheep are much addicted: the cranium, however, shews no appearance of a blow or contusion. Although frequently turning round and an unsteady gait seem to have been the only symptoms observed as denoting the existence of cerebral disease, we are not to be surprised, for it would appear from cases admitted into this infirmary that pus may form in the cerebrum, and even accumulate in a large quantity there, without giving rise to that train of symptoms by which we recognize the presence of phrenitis. The case is both interesting and instructive, and adds an important link to the chain of comparative pathology.

Case of Tetanus in a Lamb.

By the same.

On the table is placed the body of a lamb which died of tetanus. It has been forwarded to us from the country for the purpose of investigating the morbid lesions that have resulted from an at-

tack of that distressing malady. A brief but nevertheless sufficient history of the case, as it respects the cause of the disease, has been given us, which shews it to have been traumatic tetanus.

The animal had been castrated; which operation was performed in the usual way, and he was afterwards allowed, according to custom, to pasture with his dam. No symptoms of illness having been observed for about three weeks, it was anticipated all would be well. However, on the shepherd going his rounds, he found the animal lying down, and altogether incapable of getting up: the limbs were extended, the head curved backwards on the spine, and the whole body rigid, as if frozen. Convulsive spasms of the entire frame came on from time to time, and these were easily produced by an attempt being made to raise the animal or change its position. In this state it survived but a short period. Those symptoms shewed it to be a case of opisthotonos, or that variety of tetanus which is characterized by general spasms of the levator muscles of the head, drawing it backwards upon the neck or spine. On a post-mortem examination, the spermatic cord on the left side was found to be slightly inflamed and thickened, but without any indication of the formation of pus. The other cord was healthy, as were the viscera generally, both of the abdomen and thorax. The meninges of the brain, and also of the spinal marrow, are, as you see, dyed of a deep scarlet colour: this, however, does not extend lower down than opposite to the fourth cervical vertebra; beyond this they are in a normal condition. The spinal cord itself, at its anterior part, is softened in places, but the substance of the brain seems to be unaffected; the plexus choroïdes, are, however, highly injected with blood. Satisfactory as we may consider these abnormal appearances in this particular case to be, you must, nevertheless, not expect that you will find them in every instance, as in no disease do the morbid lesions differ more than in tetanus.

APRIL 8, 1845.

The TREASURER in the Chair.

Mr. E. Drake, M.R.C.V.S., and Mr. W. Brown, student, were elected Members.

CASE OF OBSTRUCTION OF THE BOWELS CAUSED BY A FUNGOIDAL TUMOUR ATTACHED TO THE INNER COAT OF THE INTESTINES.

By Mr. WOODGER.

Mr. Woodger.—The horse from which the morbid parts now before the members were taken, was in good condition, working and feeding well, and had not been attacked with colic for several years, although he had previously been very subject to it. On the 31st of last month, however, he experienced an attack, for which he was bled, and had an antispasmodic draught administered to him, and afterwards castor oil, combined with the oil of croton. No mitigation of the unfavourable symptoms taking place, I was called in, and, ascertaining that a powerful cathartic had been exhibited, and seeing that the pain continued unabated, I gave opiates, and threw up a tobacco enema. The animal appearing better in the evening, I repeated my opiate; but in the night the spasms returned with increased power, and the pulse became accelerated. I now applied a mustard poultice to the abdomen, and as the bowels had not acted, I gave a dose of linseed and croton oil, and emptied the rectum of the fæces. While performing the latter act, I observed a symptom to be present that I have frequently been convinced denoted a fatal termination in such cases,—the intestines seemed to press backward against the arm of the operator. I at once told the proprietor I feared the case would prove unfavourable, and although the animal did not manifest the acute pain generally exhibited in cases of obstruction, yet from the bowels not having responded to the two powerful doses of cathartic medicine administered, I expressed my conviction of some mechanical impediment existing in the alimentary canal. On the following morning the horse died, and, being called elsewhere, my assistant, Mr. Broad, conducted the post-mortem examination.

Mr. Broad.—On opening the abdominal cavity, I found the in-

testines contained but a very small quantity of ingesta, although they were greatly distended with gas. The peritoneal coat was altogether devoid of inflammation, and at first sight, I felt at a loss to account for the death of the horse, being convinced from the symptoms that the disease of which he died was abdominal. One circumstance, however, soon attracted my attention. I have said that the intestines contained but little ingesta, and that little was found only in the smaller ones, which are generally seen empty. This struck me as being strange, and led me to trace the whole of the alimentary canal, when I found the cœcum caput coli to be the part where the ingesta ceased to be present. I therefore laid this open, and exposed such a state of parts as I believe has not been before seen. Immediately at the commencement of the colon there was a fungoidal growth nearly as large as my fist, and of a highly vascular character. This tumour was pedunculated, and in figure not unlike a large mushroom. In its ordinary state it must have hung from its stalk or pedicle, looking towards the apex of the cæcum. Some spasmodic action had, however, caused its position to be reversed. Its body or head had been carried backwards, and forced into the origin of the colon. The valve-like structure which guards that orifice had contracted on the tumour, and with spasmodic energy retained it, thus causing the singular obstruction of which the animal died. On inspecting the mucous membrane of the intestine, we found it to be inflamed, but devoid of that dark colour which in more acute cases is generally present. It is obvious that no treatment could have been of any service whatever, it being one of those cases for which a practitioner cannot be prepared.

Case of Tumours resembling Polypi occupying the Intestinal Canal.

By Mr. J. B. Simonds.

A bay mare, in good condition, used for the purposes of draught, was first placed under my care, supposed to be labouring under spasmodic colic, about the beginning of the year 1830; the attack not being severe, her recovery was speedy, and in a few

days she resumed her work. About six months afterwards she was again admitted into my infirmary. The abdominal pain was not intense, but it continued more or less until the bowels were acted upon by cathartics, which, however proved tardy in their action. Scarcely a month had elapsed before another attack came on, when I began to suspect that a calculus existed in some part of the intestinal canal. The fæces presented no unusual character, and the food had been well masticated. She was, however, discharged within a week, apparently well, and directions were given for her to have a bran mash every other night, instead of the usual feed of oats. From this period the attacks became more frequent and severe, the pain never yielding until purging was established, and this required the exhibition of large and repeated doses of medicine. On the 24th of June, 1831, my old patient was again admitted, presenting the following symptoms:—Pulse 40 and full, respiration laboured, extremities and surface of body cold and clammy, and tongue slightly furred; she paws, wanders round her box, makes many efforts to lie down before doing so, and when down appears easier; lies about a quarter of an hour at a time, shakes herself on getting up, and goes to the manger for water, which she partakes of with avidity; the intervals between the paroxysms are short, and she frequently turns her head to her flanks, and often sighs. The treatment consisted of repeated doses of sol. aloës et ol. lini, back-raking, enemata, and the free use of diluents.

25*th*.—The groom reported that she had suffered more during the night than he had before seen her, and was not so well this morning. We have some ambiguous indications of the presence of inflammation of the bowels. The pain is more acute, the abdomen tympanitic. Pulse 60 and wiry, breathing laboured and quick, conjunctival membrane injected. These symptoms are associated with a dejected countenance, a loathing of food, and a continuance of the constipation of the bowels. Bleeding was had recourse to, hot fomentations were applied to the abdomen, opium combined with sol. aloës, and oft repeated enemas were given, but without any diminution of her sufferings. She became evidently weaker, and worn out with pain towards night; the pulse, however, indicated no immediate danger.

26*th*.—A small quantity of fæces has been passed, but there is no abatement of the abdominal pain. The pulse is 70, and all the

other symptoms are increased in severity. This day was also passed without the treatment adopted affording any relief.

27*th*.—Some more dung has been voided, and with it, the groom says, "*a large piece of flesh*," which, on examination, I find to be a tumour covered by mucous membrane. It is of a pear-shaped form, having a ragged pedicle, presenting the appearance of having been detached by force, of a bright colour, excepting at its root, and weighs eleven ounces. I was now able to form a correct diagnosis of the disease, but could only give an unfavourable prognosis. Examination per rectum did not detect any other tumour, nor was there any hæmorrhage within the alimentary canal. The general symptoms soon denoted approaching death, and which took place early on the morning of the 28th.

Post-mortem examination of the Abdominal Viscera.—Considerable inflammation of the peritoneum, especially where it covers the colon. This intestine was distended with feculent matter, almost to bursting, up to where it forms the "single colon;" beyond this the gut, and also the rectum, were empty. On laying open the intestines from the rectum, we first came upon the spot from whence the tumour voided had been dislodged: the villous and muscular coats were highly inflamed and lacerated, the injured part being about two inches in diameter; a little anterior to this, a cluster of tumours resembling polypi, seven in number, presented themselves; the largest being, at its floating extremity, about the size of a goose's egg, the others varying from that to the size of a walnut, but having their peduncles larger in proportion to their rounded ends. They were covered by the mucous membrane, and seemed to have originally grown from beneath it. They shewed no appearance either of inflammation or of strangulation, but were growing from all sides of the intestine, occupying its whole interior, and most effectually blocking up the passage; their direction was backwards, this being no doubt determined by the peristaltic action of the bowels. In no other part of the intestines did we find any signs of similar formations. There was great discolouration of the coats of the colon where it was distended with ingesta, but which gradually became less in the small intestines. The stomach might be considered as healthy, as were also all the other viscera. These singular abnormal productions are now deposited in the Museum of the Royal Veterinary College.

Case of Sacculated Intestine, containing Sand. Also of excision of the Uterus of a Cow.

By Mr. G. T. Baldwin, *M.R.C.V.S.*

Dear Sirs, *Fakenham, April* 5, 1845.

I have transmitted to you a portion of one of the small intestines of a bullock, on which is a sacculus, containing what appears to me to be fine sand; but I have not opened it, preferring that you should do so before the members of the Association, as the case is one of not every-day occurrence. The history of the case is very brief. It is simply this: the specimen was taken from an animal in perfect health, and given to me by our butcher.

Last year a successful case of excision of the uterus of a cow occurred in our practice, which may be deemed worthy of notice. The animal had been driven for some distance on the road, when symptoms of approaching parturition shewed themselves, and, being turned into a field, she there quickly calved. Immediately afterwards an inversion of the uterus took place. My father being sent for, he soon returned the uterus, and passed metallic sutures through the labia pudendi. On subsequently visiting the patient, we found her making violent throes, as if endeavouring to force down the womb, which at length she effected, bursting out the sutures: it was again carefully returned, and fresh sutures inserted, taking a deeper hold of the labia. The throes, however, still continued, and, increasing in violence, an opiate was administered, and a compress applied to the parts. The exhibition of the opiate was repeated at intervals, and a dose of laxative medicine given; but, despite all our efforts, on seeing the animal for the third time, we found the uterus again down, and the labia now so extensively lacerated that no more sutures could be inserted. What was to be done? All the compression we could employ was of no avail, and the appearance of the animal was most unsightly, and her sufferings great. We resolved on extirpating the womb. For this purpose a large clam was made, into which some caustic being placed, it was passed over the neck of the uterus, and made to embrace it firmly. Two days afterwards I removed the uterus with my scalpel. It weighed about two stones. In two days from that

time I took off the clam: slight hæmorrhage followed its removal, but the parts quickly suppurated, and although for some time the pus discharged was of an unhealthy character, yet, by the aid of tonics and a generous diet, the animal soon recovered and became fat.

Believe me,

Truly your's, &c.

Mr. Mayhew having examined the sacculated portion of intestine, described the sac as being formed by the peritoneal coat only, which had become distended by the siliceous matters taken in; for such Mr. Morton had found the contents to be. From some cause, which at this time it was impossible to assign, the two inner coats of the intestine had become ulcerated. Within the cavity thus formed, foreign substances had lodged, and in process of time accumulated; for from the edges of the orifice being perfectly healed, it was clear that the primary injury was not of recent date; and likewise from the absence of any symptom of inflammation on the distended peritoneum, there could be no doubt but that the case was of a chronic nature.

Mr. Fowler related a case of a horse that was known to eat earthy substances, after which he was observed to eructate very frequently. After six weeks' illness, during which the animal was on and off its feed, he died of an attack of colic, when the stomach, duodenum, and jejunum, were found in a state of distention; no less than four pottles of sand and dirt being removed from them.

Case of parturient Apoplexy in a Cow successfully treated.

By Mr. W. Thacker, *M.R.C.V.S.*

Dear Sir, *Twickenham, April 7th,* 1845.

I beg leave to forward you an account of a case of puerperal fever, or perhaps, more correctly speaking, of parturient apoplexy in a cow. It may contain nothing peculiar, the symptoms having developed themselves as in similar cases; the result, how-

ever, was different to what we generally look for in this immediate neighbourhood, and more especially in this particular dairy. It is from this fact, coupled with that of your having had the medical attendance of the same establishment for some time, that has induced me to give you this but imperfect history; and should it possess any thing to interest the members of the Association, I shall be pleased at having been able to contribute something, although it may be of only comparatively trifling importance, to that body.

The patient was a cow of the pure Alderney breed, six years old, and in fair condition. She was the property of his Grace the Duke of Northumberland. On the evening of the 23d of March she was placed in an open shed, being near her time of parturition. About six o'clock the same evening she calved, and that without difficulty. A pound of the sulphate of magnesia was subsequently administered to her, and but little food allowed; this consisting of bran mashes, of which she freely partook, and appeared to be going on very well. About five o'clock the following morning she was observed to refuse her food, and to stagger when moved; usually the first visible indication of the approach of this sad malady. I was immediately sent for, and upon my arrival found her still standing, though with great difficulty—pulse about 65, and full—extremities warm—mucous membranes somewhat injected—rumination and secretions suspended—loss of appetite—breathing much quickened—frequent raising of the hind legs—and a wild expression of countenance. From these symptoms being present I anticipated an attack of the disease termed by you parturient apoplexy. Although I entertained very little hopes of effecting a cure, yet, having taken a different view of the nature of the disease to what I formerly had done, I commenced my work boldly by detracting six or seven quarts of blood, which produced a decided impression on the pulse; indeed, by the time I had secured the vein the animal fell. I now administered a brisk purgative, removed what fæces were lodged in the rectum, clothed the body warm, and firmly packed her up with straw, so that she might rest on her sternum and the inferior surface of the abdomen. In about three hours I again saw her, and repeated the bleeding to the amount of four or five quarts, until a second impression was made on the pulse. I now commenced administer-

ing the extract of belladonna in four-drachm doses every four hours, and when the rumen became distended I gave in the intervals the spt. ammoniæ aromat. At night the symptoms had become worse: she was continually throwing her head about—was quite unconscious—and the eye so sunk in the orbit as to allow the finger to be introduced into the cavity and passed round the eye, which was done without producing the slightest sensation, nor could any feeling be produced in the extremities by pricking with a pointed instrument; in fact, she was in a perfectly comatose state. Injections were thrown up from time to time, and the sedative medicine continued throughout the night. On the following morning the symptoms had undergone but little change—the pulse was lessened in force, but increased in frequency, and the head was being continually thrown from side to side, as if in great agony. The eyes had now become almost lost within their orbits—the extremities and surface of the body were quite cold—no evacuation of the bowels had been produced; in short, all the appearances indicated a fatal termination, and that somewhat speedily. The doses of ext. belladonnæ were now lessened, and combined with liq. ammon. acet. given every six hours, and another cathartic administered, enemas being still employed. This treatment was continued throughout the day, and at night some amendment was visible: the eyes had become more prominent, the pulse firmer and fuller, and a degree of warmth was felt about the body. The ext. belladonnæ was now omitted, and spt. etheris nit. substituted, which was given in the night at the same intervals, namely, six hours. The following morning the improvement became more apparent: the pulse was more natural—the eyes still brighter—the natural degree of warmth was restored to the body, and sensation and consciousness had likewise returned. During the day she got up, and remained standing for an hour: after a short time the bowels responded, and she ruminated a little on partaking of a small quantity of bran. The following morning she was much better, having stood up several hours together. Her diet was now gradually increased, and she is at the present time in perfect health.

I stated that I now entertain a somewhat different view of this disease to what I previously did. You may perhaps inquire what it is. I had formerly considered this disease as one of a pecu-

liar character, although not inflammatory. I am inclined now to consider that we have it in two characters, one of a truly inflammatory nature, and the other not so, this last most probably being engorgement or even rupture of the vessels of the medulla oblongata, or its meninges. Those which I conceive inflammatory are the cases most frequently curable, such as the one I have ventured to give you the history of. In them we have at the commencement of the attack a full pulse, warmth of extremities, much fever, and all the other accompaniments of inflammation; but in the other we have a small and very feeble pulse; coldness of the body from the onset of the disease, and nearly all such terminate fatally. I probably ought not to make this distinction; but that some assume an inflammatory character I have no doubt, and these cases prove the most tractable. Apologizing for thus occupying your time, I beg to subscribe myself,

Your's, &c.

To Mr. J. B. Simonds.

To this succeeded the reading of an Essay on Puerperal Fever in Cattle, by Mr. Gregson, the discussion on which occupied the remainder of this and the succeeding evening; but as no observations marked by any great degree of novelty were elicited by it, it is withheld.

The closing meeting of the Association consisted of a

CONVERSAZIONE,

held at the Freemasons' Tavern. There was a full attendance of members, and on the tables were placed most of the morbid specimens that had been received during the session, with the books presented to the library. Mr. Goadby likewise brought many of his beautiful preparations, and several microscopes were kindly forwarded by Dr. Goodfellow, Mr. Erasmus Wilson, Mr. C. Varley, and Mr. E. Braby, in which living objects, shewing the circulation in plants and animals, with others of considerable interest, were exhibited.

After a few introductory and congratulatory remarks by the President, Mr. J. Curtis, M.R.C.S., proceeded to give a condensed but lucid lecture on the Comparative Anatomy of the

NERVOUS SYSTEM IN ANIMALS, which he illustrated by numerous diagrams.

[The Editors deeply regret their inability to do justice to Mr. Curtis' interesting and important observations, but all their endeavours, however laboured, would prove perfectly futile without the aid of several engravings.]

The following paper was then read:—

ON THE GROUPING OF ANIMALS.

By Mr. JAMES JOHN GARTH WILKINSON, *M.R.C.S.*

THE relation between man and animals is a subject which has variously occupied the attention of the naturalist, the anatomist, and the philosopher, ever since the early days of the sciences; and the order of the animal creation has also been an object of incessant inquiry, and many are the modes in which it has been viewed. The pure naturalist has attempted to trace it by a reference to the habits and visible peculiarities of living beings: the pure comparative anatomist, by a scrutiny and comparison of their interior organization: and the pure philosopher, by doctrines, derived in the first instance from his own mind, and applied afterwards to natural history, and to comparative anatomy and physiology. Frequently also,—perhaps most frequently,—the attempt to follow the series of animated nature has been of a mixed kind, and has consisted of a combination of all the three methods just alluded to.

I have chosen this subject,—the relation between man and animals,—as the text for a few homely remarks, not in order to add to your practical knowledge of a department in which so much has been accomplished (for I am neither a naturalist nor a comparative anatomist), and not to lay before you any new philosophical scheme; but as a mere looker-on, watching the game of science, to make a few comments which would be out of place in the mouths of the learned, and, in short, to start objections and frame inferences on the untechnical ground of common sense.

Each walk of nature may be studied for very different purposes; but the purpose will determine the order into which the knowledge gained during the study is distributed. Thus animals may be

classed either, 1, To assist the memory; for instance, to enable it to hold together a multitude of facts by virtue of some general point of connexion. Or, 2, To aid the rational faculties, to strengthen their perceptions of the order of nature, of man himself, and of the human mind, and of the relations in which all things stand to the Creator. Natural history, therefore, as a ground, like all the other series in the universe, may furnish any thing, from a bare catalogue to an order reflecting a profound philosophy.

In agreement with this, Lord Bacon well says, in his *Novum Organum Scientiarum*, that "a natural history, compiled for its own sake, is one thing; and a natural history, collected for informing the understanding, in order to the building up of natural philosophy, is another." (Sect. VI.)

When the end proposed in a classification of animals is to fortify the memory and to facilitate the record of knowledge, it would seem that similarity of form, and similarity in general, may constitute the basis of the classification. On the other hand, when the end is of a philosophical character, when we wish to treat our classification as a truth, and to reason from it, we must have recourse to something more vital than analogy of form, and in this case, as I hope to shew, we must rather consider affinities of use and character than the resemblances perceptible to the senses.

I am not aware that either naturalists or anatomists have hitherto attempted any other classification than one based upon the principle of similarity, either of points of external form and habits, or of interior organization. Thus, in the system of Linnæus, we find man and the monkey forming part of the same group, and standing conjointly among the primates of the animal kingdom. In the system of Cuvier, man and the monkey are again contiguous to each other; and species are associated into genera on the ground of similarity in their hands, teeth, claws, and feet,—of similarity in the substances they eat, &c. &c.

This is in some respects a convenient distribution of knowledge, and it must be allowed that, in the existing state of science, it is the most obvious one that presents itself to notice. It is well adapted for the formation of a sort of dictionary of animated nature; that is to say, a tabular statement of the most elementary kind; and so long as it is confined to this it can do no harm to the cause of truth. Yet I submit that a classification framed upon

the one principle of uniformity involves a hypothesis and not a fact; that, if used for higher purposes than those of reference and *memoria technica*, it will carry us away from the laws of nature; and that, when so abused, it must cause small facts to extinguish great ones, particular instances to over-ride general laws, exceptions to put down rules, and the senses of the body to be discordant with the common sense of the mind.

It is to be observed, that the rule of uniformity desiderates for its due carrying out a far more equable chain of beings than we know to exist on this globe: any sensible break is an imperfection to it, and seems to draw upon our faith and not upon our science; or, indeed, to suggest some further law. Although the species in each order and genus may possibly, without much violence, be reduced to analogical proportions, yet the differences between the genera are so vast as to amount to a disruption of all fair analogy, and to proclaim either that nature is broken, or that the understanding requires a better instrument than the doctrine of external resemblances to guide it through the maze of living things.

I propose, then, in place of the rule of similarity of form or structure, to make trial of the principle of affinity of use as a ground of classification; and I will now endeavour to illustrate the position, that any arrangement of things by external marks of similarity discloses nothing of the inner laws of nature. I shall attempt this, with your leave, by other than purely scientific considerations; for the scientific faculty is not the highest power of the human mind, but must borrow all the order, light, and life that can ever belong to it, from the rational and moral sphere. The author of man's faculties, the author of the good in human society, and the author of nature in all its kingdoms, is one and the same Being; and he works with the same principles, because for the same ends, in all these fields. Of this point I attempt no demonstration: it is sufficiently proved to us, as practical men, by the fact that human reason is paralytic without it. And I state it here, because it justifies me in pursuing a course of analogical reasoning, by which instances in one department are brought to bear in the way of illustration upon what is dark or obscure in another.

In the first place it may be observed, that animated nature is not a museum of stuffed specimens, in which species are neatly brought together, and where every end is attained by a simple

apposition of an orderly kind; but it is a vast social organization of living things, in which not apposition but conjunction is required; in which independence is the exception and mutual dependence the law; in which beings subsist for no other reason than because they have a part to play, and a distinct cause to represent, on the theatre of the universe.

And, accordingly, the grouping of animals in nature is not according to a scale of similarities, but according to a scale of differences. We do not find all the cat-tribe pushed into one end of a continent, and there surrounded with an impassable barrier, or, in museum-fashion, with a glass case; but, on the contrary, they are spread in different species, and intermixed with other animals, throughout the globe. Although we are such great admirers of fox-hunting in England, we do not find all kinds of foxes concentrated here; but nature, like a cruel mother, has gratified us with only a single species. No one land has a monopoly of the rat species, but nearly every climate has its own rat: and so of other cases. This is the mode in which nature distributes the species of animals and groups the genera: she groups the species very sparingly, because they are too like each other to admit of conjunction. Each climate has its own so-called animal kingdom, more or less perfect; and this associates as a whole, through man, its universal representative, with all the similar wholes upon the face of the planet. But in no other way does the general mother group her children.

I speak here, not from theory, but according to common facts; and these, I assert, are Nature's representatives in the sciences.

This method of nature may be exemplified by various comparisons, which, indeed, are themselves real instances of the same method. Of these I may be permitted to use one or two, untechnical though they be, in order the better to convey my meaning.

Take, first, a case from ranks in society, and look at the upper classes. Now, human society is a wonderful instance of grouping. But are its grades associated by extrinsic similarity alone? Who are the parties that most closely copy the nobleman? Decidedly his own servants and the swell mob. Do *they* come next to him in rank? No. The classes who really approach the upper, as a general rule, have an order and manner of their own,—a manner

determined by their rank, and which flows naturally enough from the functions they have to perform. They are joined to the upper classes, not by virtue of apishness—which, wherever it does exist, is a cause of disjunction – but because they accomplish indispensable uses, without which rank itself must stand nearly on the bare ground, like a statue without a pedestal.

Such, also, is the relation of man and animals. The animal which is an imitation of man, does not enter into the grouping that nature brings about between the human race and those good and useful creatures that adorn our fields and gather round our homesteads; for the ape is no more next to man in the nature of things, than the actor is next to the monarch he personates, or the valet next to the peer.

It is true the ape is like man, disgustingly like; but this very fact it is that degrades him and removes him from his prototype; for he is a copy without a useful character of his own; and the poorest creature with an originality is nearer to man in essence than he.

Indeed, there is no real order, whether in history, art, or science, but exemplifies the same thing. Take the similars, copies, or *simiæ* in any case, and you will find you cannot construct a series by placing them next to the originals. Were it wished, for instance, to construct a series of English poets, and to shew the order in which genius was succeeded by genius, you would probably name Shakespeare and Milton as two of the brightest links in the chain; but the bare imitators of each would drop clean out of your consideration: those who had copied these great writers might, indeed, constitute a subordinate series by themselves, but you would never place them between Shakespeare and Milton. Shakespeare's imitators are far more like Shakespeare in form than is Milton: Milton's imitators are more like Milton in form than is Shakespeare; but the imitators are altogether unlike either in essence, because they have no poetic originality; and Milton and Shakespeare themselves are allied, not by similarity of form, but by harmony of variety; each contributing something which the other could not give, to realize that which was the common end of both, namely, the exaltation of human art.

Take another illustration, borrowed from language, which also is an organic reality, and shews in its use, that the higher intel-

lectual powers are constantly working to produce a unity, not out of similars, but out of dissimilars. I before stated, that existing classifications may be likened to dictionaries of animated nature, and the parallel involves an interesting truth. In an ordinary dictionary, the words of a language are brought together by the rule of literal similarity; and a mighty convenient thing such a dictionary is. But in making use of language as an instrument of thought, we depart at once from the order of the dictionary; and in proportion as the subject lifts us into the art of expression, we avoid similarities of sound, lest the progressive spiral of ideas should be drawn back into a circle of jingling terms. Now, there is just the same difference between the present method of the naturalist and the method of nature that there is between a dictionary and a grand composition: the former coheres by a single thread, namely, the rule of uniformity; the latter is a connected tissue of ends, means, and uses, and the bond of connexion throughout is the harmonious working of the parts, all with each, and each with all.

Is it not, then, curious that classification should be based exclusively upon similarities, when the grouping of nature is effected between dissimilars? It argues little for the docility of the human mind that it persists in substituting a single kind of order, and that the lowest, for the combined order of creation; and this, too, so long after Bacon began to expound the inductive method, and taught that "man is the minister and interpreter of nature." It is also curious that the prime link in our classifications—I mean the relation of man to the monkey—should be typical of all schemes of the kind, as involving a series in which different forms *ape* each other, without any bond of principle or use.

I am led to dwell somewhat on this latter circumstance, because eminent naturalists, forgetting that their artificial systems were not framed to stand as truths, but only to aid the memory (in which light, indeed, they are commendable and excellent), have fabricated a dirty hypothesis of developments, which leads them to consider that man himself is no better than a monkey, duly curtailed, cultivated, and extended. Passing by the fact, that no development of imitation (which is the bodily and mental characteristic of the *simiæ*), could give man more than the one faculty of imitation, and could furnish him with nothing to imitate but what was lower than him-

self, which want would drive him back again into monkeyism, it may be observed, that this hypothesis is incapable of being carried out. Were it worth any thing, the monkey must have come from something else; the quadruped from the bird; the bird from the fish, and so forth. Now, although imagination, which can do much, may seem to shew some of the stages by which monkeys might become men, yet it is not so evident how all the other animal forms could be made to pass into monkeys. It would be hard work, for instance, to resolve an elephant into a monkey. But I trust I have said sufficient to shew that the hypothesis itself is inept, as supposing, on sensual grounds, that two beings stand together, which yet, in the order of nature and reason, are wide as the poles asunder.

Were a theory of developments sound in itself, and were the animal kingdom that from which man was to arise, still the world's master could proceed from no one animal, but the whole kingdom must be developed at once to produce him; and this, not by an evolution of forms, but by a spiritual outgrowth, expansion, and concentration; in which case we have recourse to a principle which virtually extinguishes the theory of development, so far at least as it is one-sided, and attributes activities to nature which can only belong to the Creator.

But if external analogies will not furnish a principle of classification accordant with the grouping of nature, so neither will the internal analogies which it belongs to comparative anatomy to discover. The same reasoning applies to both cases. Comparative anatomy is inestimable as a handmaid to human anatomy; but it deals with parts, not with wholes, and can have no function, or a most subordinate one, in indicating the order of natural history. The voluntary grouping in human society is according to the perceptions of a common sense, and is not founded upon the dissection of our friends and acquaintances; and so the grouping of the animal kingdom must be perceived by a common sense appropriate to itself, and not by virtue of comparative anatomy.

Before passing to the conclusion, I will venture an opinion, which I think is not without practical validity, that the question, "What animal comes next to man?" involves in its statement a radical inaccuracy. It is based upon the notion, that man, as a physical being, is a part of the so-called animal kingdom, whereas

I hold that, instead of being a *part*, he is *the* animal kingdom *itself*, and contains all below him, as the universal includes the partial, or the accomplished end the means; and therefore, if we are to have a theory of evolution, we must seek the matrix of the human race not in the animal but in the vegetable kingdom, from which, according to any such theory, the animal kingdom must originally have been evolved. But in this case the question, What animal comes next to man? would be changed into this other question, In what order do animals stand, as ministering to human uses, and representing the scale of human faculties? For as all animals are related to man by use or its opposite, and as they all shadow forth somewhat of his mental constitution, so are they all proximate to some part of his nature.

This it is which must render the natural history of animals dependent, in some degree, upon the higher science of the natural history of mankind. For as different climates support distinct races of men and animals, so the grouping is various according to circumstances; and these circumstances primarily consist in the character and wants of the various nations and tribes into which the human race is divided. These nations, moreover, are associated with each other according to organic laws, and form higher combinations or larger groups; constituting at last the great ethnic series, of which every point has its own specific relation (I speak here from fact) to some corresponding point in the so-called animal kingdom. I repeat, then, that in order to complete the study of natural history, and to see it in its flexibility and organic variety, we must, perforce, take account of the mutual relations of mankind.

A few words now on the doctrine of use as the highest principle of grouping. I need not enter upon this subject abstractedly, for it can, indeed, be better treated practically, as being but a piece of common sense, which is the ultimatum of all sound philosophy. I remark, then, that every day-experience shews certain animals in immediate and harmonious contact with man. And herein lies the main object of my paper, to hint to you that the domestic animals, speaking generally, constitute the first rank in the array of animated nature.

If man be indeed the "paragon of animals" (and who has doubted it?), then we may proceed from him as the centre. Now

I put it to you as practical men, whether either nature, or the force of circumstances, or necessity and physical want, has not grouped the domestic animals close around the human race. They are of the most immediate use to us, and in evidence thereof, live almost under the same roofs with ourselves. They are near our affections, and near our thoughts. They exalt civilization, and in return receive more and more of the benefits of our advancement. The need we feel of them, and the good we owe them, bring into existence a distinct branch of the healing art, which becomes forthwith an integral part of medical experience. Last, not least, the relation of man to *them*, calls forth in our breasts the ennobling sentiment of humanity, which is nothing less than religion, extending its regards by means of man to whatever is good and useful in the creation.

And are these great, broad facts, to pass for nothing, simply because the horse does not *ape* man in external appearance? Is the harmony they imply between man and the domestic animals, the harmony of use and variety, to be overlooked by the scientific naturalist, because it puts him out of those first leading-strings of the human mind, similarities of form? If it be so, he must continue for ever to be a dictionary-maker, and an order of men must be instituted for the investigation of nature.

The mental qualities of the domestic animals shew precisely the same thing as their natural grouping. In them alone do we recognize an analogy with the highest qualities of the human mind. All animals, indeed, manifest peculiar faculties, tending to self-preservation and to the perpetuation of their species; and some, as the monkey, alternately amuse and disgust us by their cleverness, cunning, and perverse imitations. But the domestic animals, properly so called, have one distinguishing *trait*, the power of yielding obedience to a being higher than themselves, which power practically is the representation of wisdom. Such a power no animal *can* exhibit which is not either domesticated or domesticable.

I may here remark, however, that the word domesticated involves a hypothesis which has hitherto been quietly assumed, without any attempt at proof: this, namely, that certain animals were once in a wild and uncultured state, and have been gradually brought into agreement with man. To the best of my know-

ledge, such a view is not supported by history, nor do I regard it as a dictate of reason. We have certain universal traditions in the world, which are not without their value in determining obscure points of history. But where is the traditive light that informs us who was the first tamer of the horse, or who it was that first brought flocks and herds about the dwellings of mankind? Why, I ask, at the beginning of things, when the world was divinely prepared for man,—why should not the sheep be ready for the shepherd? It costs as little to assume an order of gentle and obedient creatures, as to assume a man capable of reducing them to gentleness and obedience. True it is, that some animals, as the horse and elephant, exist in both a wild and a domesticated state, and that those in the wild state are caught and subjugated at the present day: but why should not the wild races have proceeded from the tame, rather than *vice versâ*, and, on this very account, be capable of the wonderful change involved in domestication?

But to return to the former question,—it is plain, on the view here propounded, that the domestic animals give us at once what we want,—a number of centres to commence from in our classification.

Be it observed, however, that I by no means put this forward as a scheme which may be easily carried out. For besides that these animals are various in character, and therefore require an arrangement among themselves, and that the grouping of them is different in different countries and among various nations, it may be doubted whether they yet form a complete series, and whether certain individuals fairly represent the beginnings of their respective orders. But one thing, I think, is clear, that at present the horse is the prime unit of the whole, and the most allied to man,—that he is the head of animated nature. We ride upon his back, because the bond of use is indissoluble between us. The centaur is an ancient attestation of this, and, like all similar fables, involves a deep scientific and rational truth.

And suppose that our scheme is more difficult than dictionary-making, and that its execution must for a long time be imperfect,—this is no reason why we should give it up. At all events, we see a distinct luminous spot, man and the domestic animals shining as a great light in the centre of animated nature. What if it be surrounded, as worlds always are at first, with a dark circumference of chaos and obscurity; this is the very matter out of which

order and beauty are to be created. It only shews that, as followers of Nature, she imposes upon us the same difficulties that she imposes upon herself. She works, and we must learn, by rational methods. The organization of knowledge must begin from principles, and be accomplished progressively, precisely as the organization of matter begins, and as solar systems are created. We have no right to be disappointed, if the one condition of exploring Nature consists in following that gradual order which she herself obeys in her operations.

Briefly to recapitulate the heads of this imperfect paper;—I have endeavoured to prove to you that the naturalist adopts one kind of arrangement, and nature another; that the classification of the naturalist is based upon the principle of uniformity, the grouping of nature upon the principle of variety; that uniformity alone produces apposition, and not unity; but that the harmony of varieties determined by use produces unity and apposition as well: that by the very bond of nature, the bond of want and sympathy and fact, the domestic animals are allied to man: that, therefore, according to the dictates of reason and common sense, they, under man, are the primates of creation; and the rest of animated nature is to be grouped round them, on the principle of harmony or its opposite, in the same manner as they are grouped round man; and that when this is done, and not till then, natural history will be a mirror of actual nature.

After the company had partaken of tea and coffee, Mr. Goadby, M.R.C.S., described his mode of

Mounting and Preserving Morbid and other Specimens.

He said: I have been requested to give you some account of my process for preserving anatomical parts, and I most cheerfully comply with the request. It is, perhaps, unnecessary that I should describe to you the manner of making the glass cases in which the preparations are inclosed. The fluid by which they are preserved more concerns you, because you may substitute it for alcohol, and thereby very considerably lessen the expense, which has often deterred persons from attempting to form a museum. Alcohol, you know, is a light fluid, and therefore most substances readily sink in it; but the fluid I am about to

describe is of great density, and on that account means must be employed to submerge the body you are desirous to subject to its action. This fluid comes recommended by its cheapness, and also by the facility with which it is made. It is composed of

Bay salt four ounces
Alum two ounces
Corrosive sublimate four grains
Boiling water two quarts.

The alum gives hardness to the preparation, which effect the bichloride of mercury no doubt aids in producing by its action on albumen; but it is likewise of service in preventing any tendency to vegetate; and in exposed vessels you will have to contend with this disposition to the production of fungi. These however only form in the first instance, and by the exercise of a little care they become not of the slightest consequence. A more serious objection to the employment of this fluid depends on the fact that it cannot be used to preserve parts of an animal that contain carbonate of lime. For the preservation of such substances alcohol presents no objection; but when my fluid is employed to preserve any of the mollusca for instance, the sulphuric acid of the alum, having a great affinity for the lime, displaces the carbonic acid, and forms sulphate of lime, which falls to the bottom of the vessel. To preserve objects that contain carbonate of lime, I have been obliged to compose another fluid in which the objectionable agent is withdrawn and another substituted, possessing an equal preservative power. I have been enabled to accomplish this by using arsenious acid instead of alum; for the arsenic not only has a preservative influence, but it also softens the body subjected to it; and any part that has been hardened by being sent from abroad, or kept for any length of time in alcohol, can by its use be rendered perfectly fit for dissection. This second fluid, which in certain cases should be substituted for the first, is composed of

Bay salt half a pound
Arsenious acid half a drachm
Bichloride of mercury two grains
Boiling water two quarts.

I must be permitted to direct your attention to the bay salt, which is to be used in preference to common table salt, since it contains both iodine and bromine, and it is not unlikely that these substances assist materially in the preservation of the objects kept in

the solution. Both the fluids are very dense, on which account it is necessary to dilute them considerably in the first instance, as otherwise the parts are submerged with difficulty; moreover, the substances are much better subjected to their influence when the strength of the fluid is thus diminished. When I wish to preserve a brain, I make the fluid of only half the strength, using four instead of two quarts of water. The preparation being placed in the weaker fluid will sink in a few hours, and after a day or two I add a stronger solution, when it again rises to the surface, but it will soon fall a second time to the bottom, and after a short period it may be permanently preserved. The arsenical fluid when used to large masses may be considerably diluted, and it is astonishing how greatly the aluminous solution may be lowered without destroying its qualities in the first instance. I have had placed in my hands this evening a preparation which has surprised and delighted me, for I regret to say hitherto I am almost the only person who has used these fluids with success. It is therefore extremely satisfactory to me to know that some one besides myself has been able to employ these solutions effectively. When I first saw this preparation I feared to touch the pus, but I was informed it was hardened. It looked soft and fluid, but I soon found that it was firm. I was gratified by being told that this had resulted from the employment of my fluid, and that the preparation was at my service. It is a most beautiful specimen—one of which I am loath to deprive you, but it having been presented to me, I cannot find it in my heart to let you have it again.

[The morbid specimen alluded to by Mr. Goadby was an abscess in the brain of a sheep, the history of which is given at page 426. We have for some time past employed Mr. Goadby's fluids, and found them to answer admirably. His manner of enclosing the preparations in glass boxes, uniting their sides together by marine glue, is, however, a peculiar feature, admitting of dissected parts being minutely examined in all directions; and few can hope to attain to the expertness and neatness with which he accomplishes this. We have seen some small and splendid beetles so delicately and chastely mounted, that they might be worn as brooches; and, when Mr. Goadby's numerous and beautiful preparations have been displayed, they have not been inaptly compared to a collection of pictures painted by nature.]

On the Acarus Pheasiani.

By Erasmus Wilson, *F.R.S. M.R.C.S.*

At the Conversazione last year I had the pleasure of exhibiting to you the mange insect of the horse, the acarus equi. On that occasion I pointed out certain distinctions between the male and female. I told you each insect had eight legs, four of which were in front and four behind. That the four which were placed anteriorly were each provided with a lobulated membranous disc, susceptible of retraction by means of a special muscle, and thus convertible into a cup exhausted of its air, like a cupping-glass. By this action the animal is enabled to cling to any thing with remarkable power.

The third pair of legs is gigantic, and also provided with these membranous discs, which serve to grasp the female during the act of copulation. Last year, you will remember I shewed to you a specimen which illustrated this use. The characteristics of the male are, however, yet more remarkable in another species of acarus taken from the pheasant, and which I have termed the acarus pheasiani. In the female of this creature the abdomen is larger and longer than in the acarus equi. In the male the third pair of legs are extraordinary in point of bulk; indeed, they seem to have absorbed an unreasonable share of the development of the animal, giving to the entire creature, as viewed by the microscope, a resemblance to a pair of leather breeches,—an object all legs. I can compare them to nothing else; and if the simile is not elegant it will be the more like the animal. These third pair of legs are so large, that the fourth pair are quite eclipsed by them. It has been a question at your meeting, What is the habitat of the acarus equi? In man it lives in the scarf skin, in which it makes long burrows, and, according to a French author, comes out of its habitation only during the night. Its food consists of the disintegrated scarf skin, and of the fluids derived from the true skin; for the little creature sinks artesian wells in the small cell at the extremity of its burrow, and thus obtains its means of nourishment. In the horse, however, the acarus does not exist in the scarf skin, but upon the epidermis, feeding on the sebaceous and perspiratory matters which collect about the roots of the hairs when the horse is not properly

groomed, or when morbid secretions of any kind are poured out and concrete upon the surface.

I had the good fortune to be the first, as far as I know, to demonstrate the existence of the acarus equi in this country. I have now the satisfaction of directing your attention to another member of this tribe. A very fine pheasant was presented to me by a friend; and, though it may not be correct to "look a gift horse in the mouth," I could not forbear an exploration of its skin, as I was at that time engaged in some observations upon the acarus of animals. In the pheasant I found the acarus upon the fine hairs or downy part of the feather, feeding apparently on the epidermis raised by the growing feather, or on the feather itself.

I have brought with me this evening specimens of the little animal, and I invite the attention of such gentlemen as may feel curious with regard to it. All must, I think, feel an interest in the subject, inasmuch as it points to the existence of a living parasite upon the skin of all animals, not intended as a source of annoyance or torment to the animal, but performing some beneficent and necessary purpose in the animal economy, probably removing from the skin matters which otherwise might act as cause of irritation and disease. The specimens under the microscope are only moderately magnified. They are preserved in the manner just described by Mr. Goadby.

Mr. C. Varley.—Perhaps you will allow me to make a few remarks respecting the acarus, of which tribe there is not a more beautiful species than the acarus Crossii. The cheese mite belongs to the same order, but is, when placed under the object glass, opaque and dull in its appearance, whereas the microscope exhibits the acarus Crossii as a beautiful transparent little creature. I placed some cheese mites in sweet oil, and observed that in this situation they lived a fortnight, but the acarus Crossii in the same situation did not exist for so long a period.

It is easy by aid of the microscope to distinguish between a vegetable and an animal. An animal has arteries and veins, and the ascending and descending fluids have their proper tubes to carry them; but in plants the two currents flow in the same cell, one occupying its outer portion, the other its inner. The only peculiarity is, that one fluid is insoluble in the other. The circulations are so different, that when seen it would at once decide between

an animal and a vegetable; and I am further of opinion that in the vegetable the two currents are in opposite states of electricity: the ascending one I hold to be positive, the descending one negative, which will account for some of the phenomena of vegetable life.

The remainder of the evening, which was protracted to a late hour, was passed in a free discussion on the different subjects that had been brought forward at the meeting, and in the interchange of those sentiments which tend to unite together the members of a common profession in terms of amity.

NOTE BY THE EDITORS.

In closing the first volume of THE VETERINARY RECORD AND TRANSACTIONS OF THE VETERINARY MEDICAL ASSOCIATION, the Editors beg to thank their friends for the support they have received: it has more than realized their most sanguine expectations; and its continuance—which they earnestly solicit—will lead either to an increase in the size of the Journal, or its more frequent publication; as hitherto they have hardly been able to shew their intended arrangement, and much matter has not been inserted through want of room; while they have to apologize for Reviews of Books received not having yet appeared.

INDEX.

ABSCESS encysted, containing hair and pus in the form of peas, 147
———— in the brain of a sheep, 426
Acarus equi, some account of, 145
———— habitance of, 450
——— pheasiana, account of, 450
——— Crossii, account of, 451
Acid butyric formed by a modification of the fermentation of sugar, 4
—— uric and hippuric found in urine, 6
—— hippuric, composition of, 7
———— its change into benzoic acid, 6
—— nature of, during the digestion of starch, 243
Albuminaria in the horse associated with diabetes, 373
Ammonia, carbonate of, how formed in ill-ventilated stables, 8
———— in urine, 8, 424
———— salts of, in guano, productive of nephritis, 425
Analyses for poisons, how to be conducted, 382
Anatomy, human and veterinary, connexion and origin of, 181
Animals, grouping of, Essay on, 437
———— and vegetables, distinctions between, 451
———— domesticated, not necessarily reclaimed wild ones, 446
Anniversary, the eighth, of The Veterinary Medical Association, 14
Antimony, as a poison, mode of detection, 383
Apoplexy, parturient, successful case of, 433
Apparatus, expensive, not necessary for the acquirement of a knowledge of chemistry, 8
Arsenic, mode of action as a poison, 374
———— on sheep, 385
———— detection of, 383
———— history of the galvanic test for, 387
Aspidium lobatum, poisonous effects of, on calves, 231
Aston, Mr., presents specimens of drugs from India, 67
Auricle, right, of the heart, ossification of, 407, 408
Baker, Mr. W., records a case of strangulated testicle within the abdominal cavity, 421
———— records an instance of quick generation of pediculi, 421
Baldwin, Mr. G. T., records a case of excision of the uterus of a cow, and also of a portion of intestine that had become sacculated and filled with sand, 432
Barium, salts of, action of, on the horse, 376
———— how detected, 377
Barrow, Mr. R., records a case of carcinoma of the brain, 83
Basilar process of the occipital bone, fracture of, 389
Bass, Mr., in the debate on dysentery, 403
Belladonna, specific action of, 384
Benzoic acid in the urine, how formed, 6
Betel nut, a vermifuge, 67, 241

Bile, use of, in the animal organism, 5
—— composition of, 7
Black quarter in cattle, a variety of charbon, 309
Bladder of sheep, calculous concretions in, 423
Blain in cattle, a variety of charbon, 309
Bodington, Mr. G., on the Management of Hunters, 392
———— on the effects of pasturage in the production of red-water, 420
Bones, tarsal, supernumerary, instances of, 391
Bouley, M., confirms the exchange of Journals, 421
Braby, Mr. E., elected Vice-president, 44
———— in the debate on influenza, 166, 169
Brain, carcinoma of, 83
—— abscess in, cases of, 88, 426
—— ossified, of an ox, 105
—— ossification, instances of, 241
—— analysis of, 114
Brande, Professor, on caincic acid, 308
Broken knee, severe case of, 414
Broad, Mr. J., elected Vice-president, 44
———— on the morbid appearances presented in a case of fungoidal tumour, 428
Broad, Mr. T. D., records a case of phrenic hernia in the horse, 191
———— rupture of the iliac vessels, and open parotid duct, 361
Burnett, Professor, on the betel nut, 68
Bust, presentation of a, to Professor Spooner, 9
Bye-laws, The, of the Royal College of Veterinary Surgeons, 100
Caincic acid, composition of, 308
Calculi found in the bladder and urethra of sheep, 423
Calculus, cystic, voided entire, 96
———— new kind of, found in the kidneys and ureters of a bitch, 251
Calomel, use of, in dysentery and diarrhœa of cattle, 402
Carlisle, Mr., his case of carditis in a bull, 119
Cartledge, Mr. B., records a case of entire removal of the hoof of a horse, and its reproduction, 75
Cartwright, Mr. W. A., records a case of sciatica in a cow, with diseased and imperforate gall-gladder, 295
Cartwright, Mr. J., in the debate on influenza, 275
———— ———— dysentery, 402
Case, Mr. F. M., records a case of carcinomatous tumours in the nasal cavities of a mare, 265
Castration productive of tetanus in a lamb, 426
Cerebellum, ossification of, case of, 94
Cerebral disease simulating phrenitis, case of, 358
Charbon, Essay on, 309
———— the chiococca racemosa, a remedy for, 305
———— characteristics of the disease, 309
———— causes and symptoms of, 311
———— general seat of, 313
———— seat of, in the horse, 313
———— ———— fowls, 315
———— ———— the ox, 314

Charbon, seat of, in the pig, 315
——— typhous, destructive nature of, 315
——— treatment of, 316
——— singularly malignant form of, 321
Chiococca racemosa, a remedy for charbon, 305
——— description of, 306
——— action of, 307
Choking, case of, 253
Christian, Mr. H., jun., records a case of encysted abscess, containing pea-shaped bodies and masses of hair, 147
Clarkson, Mr. N. F., elected member, 66
——— records cases of filariæ oculi, and fil. medinensis, in the horse, 73
——— on the epidemic that prevailed among the horses of H. M. 13th Dragoons at Bangalore, 143
Clendinning, Dr., on the Indian hemp, 71
Cœcum, carcinomatous growth within, 260
——— function of, 262
——— intussusception of, case of, 276
Colchicum autumnale, use of advocated in constitutional ophthalmia, 132
——— action of, on the horse, 136
——— use of, in influenza, 169
College, Royal, of Veterinary Surgeons, Bye-laws, &c. of, 100
Conversazione of the Veterinary Medical Association, account of, 436
Copper, therapeutical action of, 377
——— salts of, advocated as a remedy for filariæ, 378
——— effects of, in cases of glanders, 378
Council of the Royal College of Veterinary Surgeons, Report to the Profession, 296
Cox, Mr., on the connexion of parturition with red-water, 419
——— on the efficacy of blood-letting in red-water, 420
——— on the effects of pasturage in its production, 420
——— in the debate on influenza, 287
——— records a case of ossified tumour on the plexus choroides, 390
——— guano producing nephritis, 425
——— supernumerary tarsal bones, 391
——— on diarrhœa in cattle, an Essay on, 397
Crabb, Mr. W. C., elected Vice-president, 44
——— on the connexion of red-water with parturition, 420
Creasote, use of, in diabetes, 372
Crib-biting, causes of: it always constitutes unsoundness, 263
Crook, Mr. A., elected Vice-president, 44
Curb, apparatus to give pressure to, 281
Curtis, Mr. J., gives a lecture on the comparative anatomy of the nervous system in animals, 436
Danger and Flandin on the action of the salts of copper, 377
——— lead, 379
——— of arsenic on sheep, 386
Daunt, Dr. R. G., on the use of the cainca for charbon in the horse, 305
Daws, Mr. H., in the debate on influenza, 273
——— records a case of fractured pelvis; also of fractured pasterns, and the basilar process of the occipital bone, 389

Deglutition, physiology of, 62
Delafond, M., on the contagious nature of pleuro-pneumonia epizootica, 223
Delwart, Prof., on diabetes in the horse, 137
Dentition, Essay on, 290
Dextrin found in the stomach during the digestion of starch, 248
Diabetes in the horse, cases of, 371
Diarrhœa in cattle, acute, 397
Dickens, Mr., his case of congenital hydrocephalus in a foal, 117
Digitalis, specific action of, 384
Diplomas, names of those who have obtained them from the Royal College of Veterinary Surgeons, 203
Dislocation of the fetlock joint, case of, 186
Dray horses in India, description of, 208
Dropping after calving, Essay on, 366
Drugs from India, presentation of, 67
Duct, open parotid, case of, in a cow, 353
——————————— horse, 361
Dumas on the production of fat, 3
Dunsford, Mr., in the debate on influenza, 275
——————— on the use of hydrochlorate of ammonia for curbs, 282
Dyer, Mr. R. H., on the effects of iodine on cattle, 124
Dysentery in cattle, acute, 398
——————————— sub-acute, 399
——————————— constitutional, 400
Effects produced by the saliva of a rabid sheep on rabbits, 350
Epizootics, history of, 27
——————— causes of, 33
Epizootic, bovine, peculiarities of, 35
——————— not a sequela of eczema, 36
Epizootic, the, which prevailed at Bangalore, account of, 142
Ernes, Mr. W., re-elected Vice-president, 44
——————— on constitutional ophthalmia, 138
——————— on the action of the meadow saffron, 139
——————— on the acarus equi, 145
——————— on strangulation of the rectum, 149
——————— on influenza in horses, 151
——————— in the debate on the same, 271
——————— translation of a paper on the pleuro-pneumonia epizootica, from the Belgian Veterinary Journal, 194
——————— notes on the malignant typhus among cattle, 196
——————— his Essay on "Charbon," 309
——————— on the therapeutic action of medicines, 369
Examiners, board of, of the Royal College of Veterinary Surgeons, 213
Fallopian tubes, effects of the obliteration of, 413
Fat, production of, 2, 3
——— formation of, connected with bile, 6
Fatty tumours, cases of, 411, 412
Fauces, anatomy of, 45
——— the, description of, 58
Feet malformed, experimental operation for, 417
Fern, close-leaved prickly, a poison to calves, 231
Fetlock joint, case of dislocation of, 186
Field, Mr. W., re-elected Vice-president, 44

Filariæ oculi in the horse, case of, 73
——— bronchi in a calf, case of, 125
——— medinensis in the horse, case of, 73
——— modes of eradication, 125
Fischer, M., on dropping after calving, 366
Fishwick, Mr., on influenza in horses, 270
Fluids, deglutition of, 65
——— Goadby's, for preserving anatomical specimens, 448
Food, advantage of reducing it before given to animals, 250
Fowler, Mr. A., in the debate on dysentery, 403
——— records a case of pica in a horse, 433
Fowler, Mr. N., records a case of fatty tumours within the abdomen, 411
Fracture of the pelvis, cases of, 268
Gabriel, Mr. E. N., his reply to Drs. Mercer and Wilson, 343
Gall-bladder, imperforate, case of, 225
——— state of, in dysentery in cattle, 403
——— case of rupture of, 403
Galvanic and vital forces not identical, 374
Gall-nut, value of, as an astringent, 401
Gamgee, Mr. J. S., his translation of an account of the ossified brain of an ox, 105
Garrard, Mr. W., on the influenza in horses, 155
Glanders, supposed case of in the cow, 192
Goadby, Mr., his mode of preserving anatomical preparations, 447
Gonorrhœa in cattle, on, 237
Goodfellow, Dr., his examination of a pilary tumour, 259
Green, Mr., on the absorption of pus, 124
Gregory, Mr., on constitutional ophthalmia, 142
——— fractures of the pelvis, 270
Gregson, Mr. J., elected Vice-president, 44
Gyde, A., on the advantage of reducing the food of animals, 250
" Hadshy," how made, 70
Hagger, Mr., on the use of the betel-nut, 67
——— relates an Indian mode of curing splents, 68
Hall, Mr., in the debate on influenza, 274
——— records two cases of fractured pelvis, 389
Hallen, Mr. H., in the debate on influenza, 168, 274
Harvey, Mr. J., records a case of strangles being found in the cellular membrane surrounding the kidney of a filly, 356
Heart, disease of, in a bull, 119
——— punctured, case of, 404
——— ossification of the right auricle of, 407, 408
Helophilus pendulus, larva of, found on the spinal marrow, 355
Hemp, Indian, extract of, action of, 69
Hernia, phrenic, in the horse, case of, 191
Hertwig, Professor, on pleuro-pneumonia in cattle, 219
Hill, Mr. G., records a case of amputation of the penis of a horse, 410
Hock, disease of (open joint from a kick), 92
Hoey, Mr. J. W., presents some of the extract of Indian hemp, 69
Holmes, Mr. J., records a case of filariæ bronchi, 125
Homœopathy resorted to as a means of curing rabies, 348
Hoof, removal and reproduction of, case of, 75
Hooker, Sir W., on chiococcum racemosum, 306

Horns in the human subject, account of, 197
Horny textures, nature of, 199
——— composition of, 200
Horse, the, viewed as the unit of the animal creation, and the nearest allied to man, 446
Howell, Mr., on a singular disease of the spleen of cows, 129
Hughes, Mr. J. J., records cases of supposed poisoning of three sturks by common salt, 230
——— of poisoning of calves by the *aspidium lobatum*, 231
Hunters, management of, Essay on, 392
——— preparation of for the coming season, 892
——— treatment of during the season, 395
——— summering of, 395
Huzard, M., his opinions on the pleuro-pneumonia in cattle, 213
Hydrocephalus congenital, case of, in a foal, 117
Hydrophobia, case of, in the horse, 79
——— mare, cow, and heifer, 346
——— is it communicable by the herbivora? 349
Indian hemp, extract of, Mr. Hoey on, 69
——— Professor Burnett on, 70
——— Dr. Clendinning on, 71
——— Mr. Ley on, 71
——— Dr. Laurie on, 72
Indian-rubber, solution of, for open joints, 79, 264
Indigestion, cases of, 255
Influenza, Essays on, 151, 155, 159
——— discussion on, 166, 270
Iliac vessels, rupture of, 361
Jackson, Mr. J. R., records a case of a cystic calculus being voided entire, 96
Jekyl, Mr., on the poisonous compounds of lead, 387
——— introduces a paper on the antidotes and tests for poisons (note on), 389
——— in the debate on dysentery, 403
Joint, open, case of, 415
Journals, exchange of, 363
Kainard, M., on milk fever, 363
Kemp, Dr., on the use of bile, 5
Kent, Mr. W., on the betel-nut, 241
——— in the debate on influenza, 288
King, Mr. J., recommends Mackintosh's solution of Indian-rubber for preventing the escape of synovia, 97
King, Mr. H., on the use of this solution, 264
King, Mr. F., jun., on a solipede breed of pigs, 129
Knee, broken, severe case of, 414
Knowledge of the diseases of cattle and sheep, importance of, 27
Knox, Dr., his contributions to comparative anatomy, 205
——— on the nostrils of the horse, 205
——— on a muscle in the arm of the horse corresponding to the pronator teres in man, 212
Kumree not associated with worm in the eye, 75
Lamb, case of tetanus in, from castration, 426

Langdorff, M., on the therapeutic action of calica, 307
Larva of the heliopholus pendulus found on the spinal marrow of a horse, 355
Larynx, cartilages of, 45
——— ligaments of, 45
——— muscles of, 47
Lassaigne and Lauret's analysis of the brain of a horse, 114
——— M., on a new kind of calculus, 251
Laurie, Dr., on the effects of Indian hemp, 72
Lead, action of, as a poison, 378
——— on the dog, 387
——— salts of, their influence, how counteracted, 379
——— how detected, 378
——— action on the horse, 388
Lecture, introductory, to the session, given by Mr. Morton, 1
Leech, Mr. T. M., on the effects of wheat on horses, 232
——— records a case of open parotid duct in a cow, 353
Lemann, Dr. F., on constitutional ophthalmia, 132
Ley, Mr., on the Indian hemp, 71
Library, presentations to, 66, 132, 266, 275, 374
Lice, quick generation of, 421
Liebig on the formation of fat, 2
——— on poisoning by the compounds of lead, 387
Lime, carbonate of, how formed in urine, 424
——— being more extensively used as manure, effects of, 425
Litt, Mr. W., records a case of dislocation of the fetlock joint, 186
——— pericarditis in a bullock from puncture, 404
Liver, accumulation of of mineral poisons in, 380, 384
Localization of poisons, 379
Lord, Mr., receives a silver medal, 24
——— his Prize Essay on the anatomy of the fauces and physiology of the voice and deglutition, 45
——— records a case of melanosis in a cow, 126
Mannington, Mr. J., records a case of supposed glanders in a cow, 192
——— of rabies in a mare, cow, and heifer, 346
Markham, Mr. J., records a case of rabies in the horse, 189
Mark Lane Express, communications extracted from, on the subject of the examinations at the Veterinary College, Edinburgh, 337, 338
Mayer, Mr. T. W., removes two tumours from the flanks of a heifer, 121
Mayhew, Mr., describes the lesions in a case of saeculated intestine, 433
Melanosis in the cow, cases of, 126, 127
——— horse, case of, 128
Members, election of, 66, 132, 145, 265, 275, 397, 428
Mercer, Dr. Jas., on the Report of the Council of the Royal College of Veterinary Surgeons, 338
Mercury, compounds of, accumulate in the liver, 384
——— specific action of, 384
Metallic compounds, certain, do not exist in the body in a normal state, 381
Milk fever, paper on, by M. Kaïnard, 363

Milk fever, causes of its infrequency in animals, 364
Mineral compounds, action of certain ones on the animal economy, Essay on, 374
Morton, Mr. W. J. T., gives the Introductory Lecture, 1
——— his Annual Report of the Veterinary Medical Association, 14
——— receives a present of a service of plate, 38
——— re-elected Secretary and Librarian, 44
——— on Indian aloes, 67
——— on the extract of Indian hemp, 69
——— on the action of iodine, 124
——— on the action of colchicum autumnale, 136
——— on diaphoresis in the horse, 140
——— on strangulation of the rectum, 149
——— in consultation on a disease of the brain, 359
——— his mode of detecting arsenic advocated, 383
——— on the action of arsenious acid as a poison, 383
——— on the specific action of medicinal substances, 383
——— on the advantages resulting from veterinary surgeons instituting their own analyses in cases of poisoning, 386
——— records the history of his galvanic test for arsenious acid, 387
——— on poisoning in the dog by the compounds of lead, 388
——— effects of lead on the horse, 388
——— on ossific tumours on the plexus choroides, 391
——— on the character of urine in red-water, 419
——— on the formation of cystic calculi in sheep, 423
——— on guano giving rise to nephritis in cows, 425
Museum, pathological, by Dr. Thibert, notice of, 362
Names of those who have obtained their diplomas from the Royal College of Veterinary Surgeons, 203, 304, 404
Nervous system in animals, comparative anatomy of, 436
Nice, Mr. J., elected Vice-president, 44
Nostrils of the horse, structure of, 205
——— carcinomatous tumours within, 265
——— disease of, mistaken for glanders, 268
Occipital bone, basilar process of, fractured, 389
Œsophagus, the, description of, 57
Open knee joint, severe case of, 414
Ophthalmia, constitutional, communications on, 132
——— considered a rheumatic affection, 134
——— new mode of treatment for, 134
Oration, annual, delivered by Mr. J. B. Simonds, 25
Organs, the, in which metallic poisons may be detected, 380
Ossification of the brain of an ox, account of, 105
——— instances of, 241
——— of the right auricle of the heart of a horse, 407, 408
Osterten, Dr., on the accumulation of the compounds of mercury in the liver, 384
Paralysis, case of, successfully treated by strychnia, 235
Parotid duct, case of its being opened in a cow, 353
——— opened in a horse, 361
Parotid gland, amount of saliva secreted by it, 354

Parturition, its connexion with red-water, 419
Parturient apoplexy, case of, 433
——— Essay on, 436
Pasture, peculiarity of, productive of red water, 420
Pastern bones, fracture of, 389
Patellani, M., his case of ossified brain of an ox, 105
Pediculi, quick generation of, 421
Pelvis, cases of fracture of, 268, 389
Penis, amputation of, case of, 410
——— mode of amputating it, 411
Percivall, Mr. W., on the poisonous effects of the salts of barium, 376
Pericarditis in a bullock, case of, 404
Pharynx, the, description of, 60
——— muscles of, 61
Phillips, Sir R., on the betel plant, 68
Phrenitis, disease simulating, 358
Pica, case of, in a horse, 433
Pigs, solipede breed of, 129
——— effects produced by the obliteration of their Fallopian tubes, 413
Pilary tumour, case of, 256
Pleuro-pneumonia epizootica in cattle, account of, by M. P. Verheyen, 194
——— is it, or is it not, contagious? 213, 322
——— convalescent animals capable of propagating it, 223
——— its media of communication, 326
——— the flesh of animals affected with it in the early stages not unwholesome, 327
——— considered contagious, 327, 332
——— measures of the sanitary police respecting it, 327
——— Is it congenital? 333
——— means of eradicating the disease, 330
Plexus choroides, ossified tumours on, 390
Poisons, action of, 313
——— their introduction into bodies after death, how known, 381
——— localization of, 379
——— Essay on, 374
Presentation of a bust to Professor Spooner, 9
——— service of plate to Mr. Morton, 37
Prince, M., on typhus in horned cattle, 364
Proteine, composition of, 1
——— discoverer of, 1
——— origin of, 2
Prout, Dr., analysis of a portion of osseous matter taken from the cerebellum of a horse, 95
Pulse, venous, how caused, 409
Punctured heart causing pericarditis in a bullock, 404
Purves, Mr. J., his contributions to veterinary pathology, 201, 253
Rabbits, inoculation of, with the saliva of a rabid sheep, 350
Rabies canina, a prize of £50 offered for the cure of a well-attested case of, by transfusion, 12
Rabies in a mare, cow, and heifer, cases of, 346
——— is it communicable by the herbivora? 349

Rabies, case of, in a horse, 79, 189
Raddall, Mr., records a case of rabies in the horse, 79
Read, Mr., on poisoning by yew, explanatory note, 98
——— on pilary tumours, 256
Rectum, rupture of, case of, 93
——— strangulation of, case of, 148
Red-water receives elucidation by the relationship which exists between the function of the liver and kidneys, 7
——— character of the urine in, 419
——— considered identical with jaundice in man, 419
——— benefits of blood-letting in cases of, 420
Report, Annual, of the Veterinary Medical Association, 14
——— of the Royal College of Veterinary Surgeons, 301
——— reply to, by Dr. George Wilson, 334
Review of Swedenborg's Animal Kingdom, 177
Rice, Mr., in the debate on influenza, 171
Rigs, peculiarities of, 422
Roaring a sequela of influenza, 168
Robb, Mr., presents the bust to Professor Spooner, 9
——— elected Vice-president, 44
——— on constitutional ophthalmia, 141
——— on the action of certain mineral compounds on the animal system, 374
——— in the debate on influenza, 173
——— on ophthalmia, 141
——— on fracture of the pelvis, 270
——— presents apparatus for giving pressure to curbs, 281
——— in the debate on dysentery, 402
——— considers red-water and jaundice the same diseases, 418
Robinson, Mr. W., records a singular case of introsuscepted cœcum in the horse, 276
Rumination in the human subject, instances of, 197
Salt, common, supposed cases of poisoning by, 230
—— prevents the development of arsenic in analysis, 386
—— appears to check the poisonous tendency of arsenic, 386
Sand found in a portion of sacculated intestine of a cow, 432
——— the small intestines of a horse, 433
Sansom, Mr. E., records a case of strangulated rectum, 148
Sciatica, case of, in a cow, 225
Sebaceous secretion, nature of, 200
Secretions, characters of, traceable to food, 6
Sewell, Professor, offers a prize of £50 for the cure of a well-attested case of rabies canina by transfusion, 12
——— records a case of ossification of the cerebellum, 94
——— in the debate on influenza, 171, 175
Sheep, rabid, effect of the saliva of, on rabbits, 350
——— abscess in brain of, case of, 426
Shenton, Mr. J. H., on gonorrhœa in cattle, 237
Shirley, Mr. W., elected Vice-president, 44
——— his Essay on dentition, 290
Shoes, removal of, advocated in influenza, 168, 172

Silvester, Mr. F. R., records cases of calculi in the bladder and urethra of sheep, 423
Simonds, J. B., delivers the annual oration, 25
——— re-elected Treasurer, 44
——— on hydrocephalus, 118
——— on carditis in a bull, 121
——— on tumours in the ruminant, 122
——— on the effects of iodine, 124
——— on the eradication of filariæ bronchi, 125
——— on melanosis in the cow, 127
——— records a case of the above, 127
——— in the horse, 128
——— on constitutional ophthalmia, 137
——— records a case of disease of the nasal organs mistaken for glanders, 268
——— on a case of introsuscepted cœcum, 278
——— in the debate on influenza, 282
——— records experiments with the saliva of rabid sheep on rabbits, 350
——— on lime in the production of calcareous concretions in sheep, 425
——— on an abscess in the brain of a sheep, 426
——— on a case of tetanus in a lamb, 426
——— records a case of tumours resembling polypi found in the colon, 431
Skull, fracture of, causing abscess, 88
Soares, Dr., on the use of the caïnca, 307
Spine, case of sinking of, in a cow, 225
Spitta, Professor, on chioccocum racemosum, 307
Spleen, singular disease of, in cows, 129
Splent, Indian recipe for cure of, 68
Spooner, Professor, has his bust presented to him by his pupils, 9
——— re-elected President, 44
——— on filariæ oculi, 75
——— on reproduction of hoof, 77
——— on a case of rabies in the horse, 82
——— on carcinoma of the brain, 83
——— records a case of fracture of the skull and abscess on the brain, 88
——— on the mange insect, 146
——— on encysted abscesses, 147
——— on strangulation of the rectum, 150
——— in the debate on influenza, 172
——— on the formation of pilary tumours, 257
——— records a case of a carcinomatous tumour in the cœcum of a horse, 260
——— on the function of the cœcum, 262
——— on crib-biting, 263
——— on carcinoma in the nasal cavities, 266
——— on puncture of the heart, 406
——— on ossification of the heart, 408
——— on amputation of the penis, 411

Spooner, Professor, records a case of tumour in the thoracic cavity, 412
——— records experiments illustrative of the effects produced by obliterating the Fallopian tubes, 413
——— on broken knees and open joint, 414
——— records experimental operation in a case of congenital malformed feet in a foal, 417
——— on a strangulated intestine retained within the abdominal cavity, 422
Stanley, Mr. E., records a case of larva of the helophilus pendulus being found on the spinal marrow of a horse, 355
Starch, changes produced in during digestion, 242
Stomach, ulceration of, case of, 201
——— distention of, case of, 254
——— inflammation of, case of, 254
Strongyles found in the cellular membrane surrounding the kidney of a horse, 356
Strychnia, value of, in paralysis, 235
——— specific action of, 384
Swaisland, Mr. C., analyzes ossific matter taken from the brain of a horse, 96
Swedenborg's Animal Kingdom, review of, 177
Sulphuric acid lemonade an antidote for the salts of lead, 379
Summering of hunters, on the, 395
Tarsal bones, supernumerary, instances of, 391
Taylor, Mr. T., Derby, records a case of paralysis successfully treated with strychnia, 235
Tendons, successful division of, 417
——— French mode of operating on, 417
Testicle, strangulation of, retained within the abdomen, 421
Tetanus cured by the extract of Indian hemp, 69
——— in a lamb, case of, 426
Thacker, Mr. W., records a case of ossification of the right auricle of the heart of a horse, 407
——— parturient apoplexy in a cow successfully treated, 433
Thibert, Dr., museum of pathological anatomy, 362
Thomson, Dr. P. D., on the digestion of starch, 262
Tiedmann, Professor, on an ossified brain of an ox, 107
Tombs, Mr. J., records a case of open hock joint, 92
Tumours, fatty, taken from the lumbar region of a horse, 411
——— resembling polypi in the intestines, 429
——— within the thorax, 412
——— fungoidal, causing obstruction in the bowels, 428
——— mammary, case of removal of, 121
——— influence of iodine on, 123
——— pilary, case and description of, 256
——— carcinomatous, 260, 265
——— ossified on the plexus choroides, 391
Turner, Mr. T., re-elected Vice-president, 44
Turner, Mr. J., re-elected Vice-president, 44
Turnip, a lime plant, salts found in, 424
Typhus, malignant, in cattle, 196

Typhus in cattle, by M. Prince, 364
Varley, Mr., on the acarus Crossii, 451
———— on the distinction between animals and vegetables, 451
Vegetables elaborate the principles of animals, 4
Venous pulse, how caused, 409
Verheyen, M., on the pleuro-pneumonia epizootica in cattle, 194, 213, 322
Veterinary anatomy, orgin of, 181
———————— its connexion with human, 181
Veterinary College medical session, commencement of, 1
Veterinary Medical Association, anniversary of, 14
———————————— history of its origin, 39
———————————— Proceedings of, first published in junction with "The Veterinarian," 39
———————————— said to be injurious to that journal, 40
———————————— Transactions of, proposed to be published, 40
———————————— the first editor thereof, 40
———————————— proposed to be made an open journal, 41
———————————— benefits resulting from it, 42
———— Surgeons, Royal College of, 203
———————————— board of examiners, 203
———————————— report of, 301
———————————— reply to, by Dr. George Wilson, 334
———————————— Dr. Mercer, 338
———————————— deputation replicative to Dr. Mercer, 341
Voice, physiology of, 51
Urea, the change it undergoes so as to form carbonate of ammonia, 8
Urethra of sheep containing calculi, 423
Urine, characteristic properties of, 6
———— the changes it undergoes so as to give rise to the formation of calculi, 424
Urino-biliary calculus, case of, in a bitch, 251
Uterus of a cow, excision of, 432
Wallis, Mr. W. S., records a case of a singular disease of the brain simulating phrenitis, 358
Wheat, effects of, on horses, 232
White, Mr., in the debate on influenza, 273
———— on the connexion of red-water with parturition, 420
Wilkinson, Mr. J. J. G., on the grouping of animals, 437
Wilson, Mr. Erasmus, microscopically examines a portion of osseous matter taken from the cerebellum of a horse, 96
———— his drawings and explanation of the same, plate I.
———— on the classification, structure, and development of the echino-coccus hominis, 98
———— his drawings and explanation of the same, plate I.
———— his presentations to the library, 132
———— on horns in the human subject, 197
———— on horny textures, 199

Wilson, Mr. Erasmus, on sebaceous secretion, 200
———— on the "venous pulse," 409
———— records a severe case of broken knee and open joint, 415
———— on the acarus pheasiani, 450
Wilson, Dr. George, on the report of the council of the Royal College of Veterinary Surgeons, 334
Woodger, Mr., records a case of rupture of the rectum, 93
———— in the debate on influenza, 170
———— considers influenza infectious, 288
———— records a case of fungoidal tumour attached to the inner coat of the intestines, 428
Wright, Mr. T., his Essay on influenza, 159

DIRECTIONS TO THE BINDER.

Plate 1, with explanation, to face page 104.

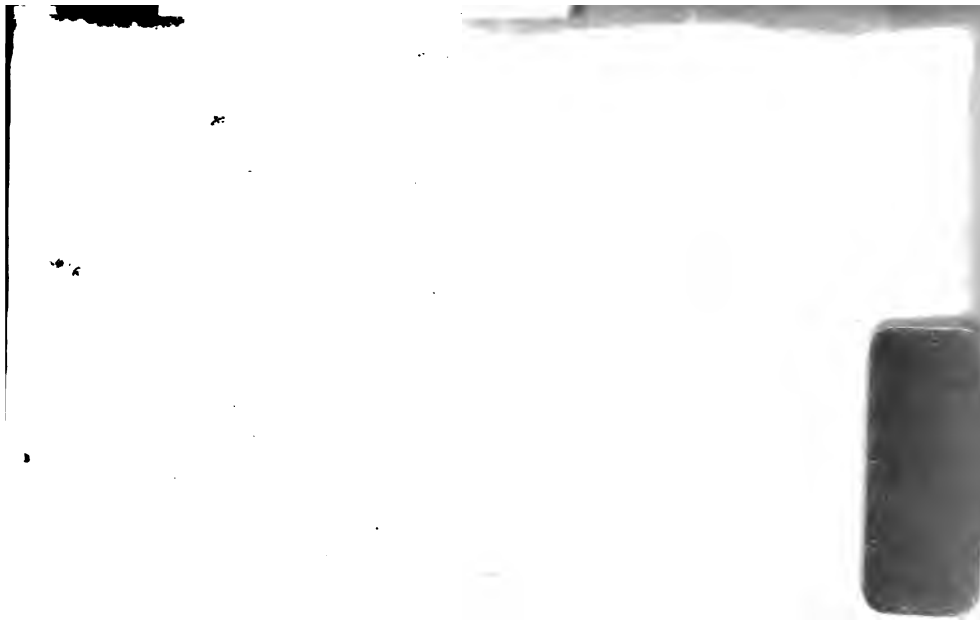
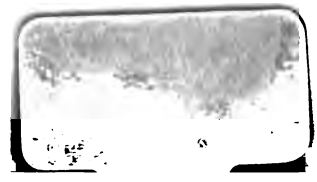
Plate 2, with explanation, to face page 205.

ERRATA.

Page 66, *for* "1837," *read* 1737.

— 98, *for* "stamineous," *read* strameneous.

— 98, *for* "cereulea," *read* cerealia.

— 194, *for* "P. Verhegen," *read* P. Verheyen.

— 392, *for* "E. Boddington," *read* G. Bodington.